Distr.
LIMITED

UNIDO/ICIS.136
27 December 1979

ENGLISH

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

STRUCTURAL CHANGES IN INDUSTRY *

Prepared by

the Global and Conceptual Studies Section
International Centre for Industrial Studies

---

* This document has been reproduced without formal editing.

id.79-10423

CONTENTS

Page

INTRODUCTION 1

A. GENERAL FINDINGS AND CONCLUSIONS 5

1. The Context 5
  1.1 The developing countries 7
  1.2 The developed countries 11

2. Issues Pertaining to Developing Countries 17
  2.1 Basic principles 17
  2.2 Domestic policies and institutions 18
  2.3 Stimulating redeployment by a greater range of actors 21
  2.4 Co-operation with developed centrally planned economy countries 24
  2.5 Less advanced developing countries 24
  2.6 Co-operation among developing countries 25
  2.7 Information on future structural changes 27
  2.8 Further action by developing countries 28

3. Issues Pertaining to Developed Countries 30
  3.1 Adjustment policies 30
  3.1.1 The establishment of analytical instruments 31
  3.1.2 Policies and measures facilitating resource reallocation 33
  3.1.3 Employment 37
  3.2 Public support to redeployment to developing countries 41
  3.2.1 National industrialization funds for developing countries 42
  3.2.2 Official development assistance 44
  3.2.3 Access to markets and marketing assistance 45

4. Issues Pertaining to International Action 47
  4.1 Analyses and reporting on the industrial restructuring process 47
  4.2 Redeployment services 48
  4.3 Consultations 50
  4.4 Reconciliation 50

Page

B. STRUCTURAL CHANGES IN DEVELOPING COUNTRIES 52

1. Introduction 52

2. Implications of the Lima Target 53

3. Country Priorities 56

4. Some Sector Priorities and Prospects 64

4.1 Mineral processing industries 64
4.2 Agro-industries 68
4.3 Petrochemicals 68
4.4 Estimates of resource requirements 68

5. Industrial Restructuring among Developing Countries 73

5.1 Direct foreign investment among developing countries 73
5.1.1 The statistical picture 73
5.1.2 The implications of direct foreign investment among developing countries 78
5.2 Intra-developing country technology exports 82

6. Strategies of Major Actors 85

6.1 Actors, objectives and actions 85
6.2 Objectives of actors and the restructuring process 89

7. Issues for Consideration by Developing Countries 92

Page

C. STRUCTURAL CHANGES IN DEVELOPED COUNTRIES 95

1. Introduction 95

2. Main Features of the Restructuring Process 97

  2.1 Developed market economy countries 97
  2.2 Overall trends in centrally planned economies 100

3. Main Features of the Restructuring Process in Industry 102

  3.1 Sectoral changes in developed countries 102
  3.2 Changes in foreign trade patterns 108
  3.2.1 Main trends 108
  3.2.2 Comparative advantages in foreign trade 112
  3.2.3 Determinants of comparative advantages in foreign trade 117
  3.3 Redeployment of industries from developed to developing countries as one element of structural change 120

4. Expected Future Developments of Industrial Sectors 124

  4.1 Projections for developed market economies 126
  4.2 Expected developments in centrally planned economies 132

5. Employment in the Developed Market Economies 136

  5.1 General observations 136
  5.2 Increased foreign trade and other factors influencing employment 139

6. Policies Affecting Structural Changes 142

ANNEX 1 List of UNIDO Papers on Structural Changes 149

ANNEX 2 Additional References, Chapter C 151

LIST OF TABLES

Page

Table 1 Opportunities for Further Processing Developments Developments 65

Table 2 Current and Projected Mineral Processing Capacity of All Developing Countries in per cent of Recoverable Mine Production 67

Table 3 Developing Countries with Opportunities for Further Mineral Processing 67

Table 4 Intra-regional Direct Investment Stock, Latin America, by Host Country and by Country of Origin, 1971 and Latest Available Year 74

Table 5 Intra-regional Direct Investment Stock, Asia by Host and Origin, 1976 75

Table 6 Growth Sectors of Manufacturing Industry between 1960 and 1973 in selected developing countries 103

Table 7 Foreign Trade Patterns of the OECD Countries and European OECD Countries with the Centrally Planned Economies and Developing Countries 1970 and 1977 109

Table 8 Rankings of Industry Sectors in Selected Developed Market Economies by Revealed Comparative Advantages in Trade with Developing Countries in Various Years 115

Table 9 Rankings of Industry Sectors in Selected Developed Market Economies by Revealed Comparative Advantages in Total Trade, or in Trade with OECD Countries or all Developed Countries in Various Years 115

Table 10 Ranking of Industry Sectors in a Number of Developed Countries According to Growth Projections 133

INTRODUCTION

Background

In the Note on Industrial Redeployment (Ref. ID/CONF. 4/9) submitted by the Secretariat to the Third General Conference of UNIDO in connexion with Agenda item 5 (d), a very brief review is presented of the concept and approach adopted and of the major findings and proposals made by the Secretariat in its research programme on redeployment and restructuring. As is indicated in the Note, this programme is carried out in pursuance of General Assembly resolution 31/163 of December 1976 and covers the following five interrelated elements:

(i) Studies regarding motives, plans and obstacles of individual industrial companies for redeploying part of their activities to a developing country;

(ii) Studies on the process of structural changes in industry in developed countries in respect to, on the one hand, past developments and its major determinants and on the other hand, likely future developments;

(iii) Studies on the prospects and plans of developing countries in terms of industrial development, manufactured exports and the scope and forms of international industrial co-operation;

(iv) Studies on the impact and implications of redeployment for developing countries;

(v) Studies covering related aspects in the field of international trade, adjustment policies, trade policies and various mechanisms for international co-operation.

The aim of this research programme is to analyse the ongoing international and national restructuring processes in the industrial sector, to identify the major determinants of these processes and to assess the objectives and constraints of the major actors concerned as to the course and pace of structural change. It is expected that on this basis it may be possible to assess the convergence and divergence of the various actors' objectives and motives in the changing pattern of development.

The studies are thus directed towards achieving two major goals: (1) highlighting major development trends and disseminating information on perspectives of the international restructuring process in order to reduce prevailing uncertainties for the actors and, (2) identifying constraints to, and formulating proposals for an increased and equitable international industrial co-operation, which might ease some strains on international economic and political development in the eighties.

The Secretariat is fully aware of the intricacy and complexity of this task. However, by systematically pursuing this programme and periodically reporting on its findings to the international community, it is expected that the Secretariat would provide essential information on crucial issues pertaining to the restructuring process and thereby would contribute to fostering non-disruptive structural change.

In these endeavours, the Secretariat is seeking and has been receiving substantial support and co-operation from individual governments, research institutes, industry, trade-unions and international organizations. This co-operation is gratefully acknowledged and is seen as an essential element of the Secretariat's work. Firstly, because the Secretariat can significantly supplement its own studies through the data, research findings and other information to which the various bodies have access. Secondly, because an exchange of such information and the direct contacts with these national and international bodies can be seen as a major factor for stimulating and co-ordinating the research and debate on this subject. This dialogue between various institutions concerned is indeed both a prerequisite and an objective of the Secretariat's work. Finally, the support received enables the Secretariat to pursue its programme in spite of severe limitations of resources.

To this end, the Secretariat is attempting to keep close contact with concerned governmental and non-governmental organizations, to disseminate all its working papers as they become available and to directly present its findings in the form of lectures, conference papers, and meetings at the international and national level. An informal working group on restructuring composed of researchers from industrialized countries is meeting regularly under UNIDO's auspice and it is envisaged to follow up on a recurrent basis the first seminar on redeployment with experts from developing countries held in 1979. In order to service other organizations and institutions, the Secretariat is also regularly issuing a "List of Papers Relating to Structural Changes in Developed Countries". 1/

The Secretariat is grateful for the advice and assistance received from the working group on restructuring, from the experts from developing countries and from other persons and organizations.

Aim of Report

The primary aim of this report is to elaborate and substantiate the issues raised in the official Secretariat Note submitted to the Third General Conference of UNIDO. 2/

In view of the necessary brevity of the Note it was found essential to provide additional information and arguments especially relating to the proposals for action by developed countries and developing countries as well as to the proposals for international action. 3/

Hence, the Secretariat has attempted to use the data presently available for providing - on the occasion of the Third General Conference of UNIDO - an overview of the findings and a number of suggestions for consideration by the international community.

Yet, in view of the complex and long-term nature of the Secretariat's research programme on redeployment and structural change, the present report can only represent a first step in this direction by highlighting some of the major issues involved. In pursuing its studies the Secretariat hopes to gradually identify in greater detail the areas which offer particular prospects for international co-operation and the means for achieving this.

1/ List of Papers Relating to Structural Changes in Developed Countries, Issue No. 3, November 1979. (UNIDO/ICIS. 127).

2/ ID/Conf. 4/9.

3. ID/Conf. 4/9, pages 26 - 27.

Chapter A should be seen as the main part of the report. In this chapter the major, general research findings are presented in a summarized form and the specific issues relating to the developed countries, the developing countries and international organizations are described.

Chapters B and C constitute supplements to the first chapter. They contain certain factual information relating to structural changes in developing and developed countries respectively, based on the findings of the Secretariat's research programme.

Chapter B covers certain aspects of structural change relating specifically to the developing countries such as, future forms of redeployment, and features of future industrialization of the developing countries.

In Chapter C, the findings relating to structural changes in developed countries are presented. Here a review of the findings of the country studies undertaken is given. In particular major determinants of past and future developments, likely prospects of structural change, effects on employment and relevant government policies are outlined. Further detailed research results are to be found in the series of specific country and issue papers that are listed in the annexes.

A. GENERAL FINDINGS AND CONCLUSIONS

1. The Context

The achievement of the Lima target of a 25% share of the developing countries in total world industrial production by the year 2000, should be seen primarily as a means for achieving an increased and sustained overall economic growth in these countries, which should lead to improved social welfare through a relatively high growth of their most dynamic sector - the industrial sector. This implies a gradual change of the countries' economic and industrial structures and a changed international division of labour.

For the industrialized countries the international division of labour has so far undoubtedly yielded significant benefits. In recent years, however, low overall growth and other problems in the developed market economies have accentuated the fact that the previous resource and trade flows between industrialized countries and developing countries have contributed to some of the developing countries emerging as exporters in some manufactured products markets. There is a tendency within the industrialized countries to single out these manufactured imports from developing countries as the major disruptive force in their economies. As is shown in Chapter C of this report, however, the crucial causes for the present economic situation in developed economies are to be found inside these countries. Indeed, the influence of developing countries' economic restructuring on overall developments in the developed countries is clearly positive, not negative. It creates additional markets for capital and consumer goods of growing significance and contributes to a more efficient resource allocation.

Can a continuation and possible acceleration of the international restructuring process be regarded as generating mutual benefits for these two groups of countries? Obviously there is no automaticity pertaining to this process nor, even if it is in theory a positive-sum game, does it follow that all will in fact benefit, nor that the distribution of benefits will be acceptable to all parties. That depends on the degree of consistency of objectives, on the "rules of the game", on the time horizon in question and on global constraints - both inherent in the restructuring process itself and external to it.

To treat developed and developing countries as homogeneous blocks is a simplification. The countries show differences in terms of stage of industrial development; size of territory and population; endowment of raw materials and energy sources; access to international communications; technological capacity; economic-political systems (in particular in terms of the rolè of the private versus the public sector) etc. Will the restructuring process favour only the relatively large and more advanced countries? Will international developments aggravate prevailing disparities between and within countries in terms of distribution of benefits to regions and groups - age, profession, sex, etc. - of the population? Will not an increasing competitiveness, due to more export oriented growth cause a polarisation among countries, sectors, enterprises and individuals?

These questions point to the need to examine the determinants of structural change. The major actors generating and conditioning the changes are the governments and government-related bodies of the various countries, the transnational companies both in production and services, small and medium sized and/or predominantly domestically oriented enterprises, labour organizations, financial institutions, consumer groups, and international groupings and organizations. The Lima Declaration and Plan of Action implicitly presupposes the existence of convergences of interests in this set of actors. The international community should search for and utilize such convergences as may exist and conceive and implement equitable forms for international industrial co-operation. To this end an examination of current and expected structures and trends in national and international production and trade is required.

1.1 The developing countries

The industrialization process in developing countries has so far been characterized by concentration. Globally, a small set of countries in Latin America and Asia account for some 3/4 of all industrial production carried out in the developing world, much the same set has been the source of close to 3/4 of the total increment in output since the mid 1960's, a somewhat more numerous group of rather different membership has been the origin of most manufactured exports from developing countries, while most foreign resources connected with industrialization have been directed to these countries. At a generous estimate, the names of not more than twenty developing countries would be enough to complete the list of those countries where industrialization, measured on any axis, has occurred on a significant scale. Within each of the main regions of the developing world, at most a handful of developing countries account for the bulk of industrial activity.

The sectoral pattern of production is closely associated with the size of the industrial sector. Those developing countries where total industrial activity is greatest are also those where the range and degree of sophistication of industrial production reach their maxima. The more advanced the industrial sector, the fewer the developing countries where output is located.

On the evidence of the past two decades, industrialization has been a process revealing glaring and growing inequalities within the developing world. The particular form it has taken has sharpened rather than narrowed the differentials among developing countries, not to mention its impacts on internal inequalities. If industrialization is the motor of economic expansion, and if its form were in the future to be similar to that of the past, it is likely that fulfillment of the Lima Target would be accompanied by ever greater splits within the developing world.

Foreign investment in developing countries has been concerned with (i) securing supplies of important raw materials, mineral and agricultural; (ii) securing access to developing countries' markets for intermediate and final goods; (iii) securing access to supplies of cheap labour to be used in production destined for industrialized countries' markets and (iv) (sometimes) access to domestic financial incentives and freedom from legal interferences with production, e.g. environmental constraints. Investment by corporations producing industrial goods has been followed, in recent years, by investment from corporations providing industrial services: financial institutions, advertising agencies and management and engineering consultancy groups. The investments in production facilities have been concentrated by country and have led to substantial penetration of the more dynamic manufacturing sectors in developing countries. Power exercised by transnational corporations' affiliates within developing countries' markets is now significant and is, in several cases, a major determinant of the structure of those markets.

The incorporation of developing countries into a steadily forming world system has taken place through various agents and instruments: the unifying feature of all of them is that they tie in the developing countries' users of foreign resources into the industrial integration scheme of the industrialized countries' economic agents. Initially, the foreign aid package severely circumscribed the freedom of choice of developing countries' industrialists regarding purchase of equipment supplies and destination of output; the direct foreign investment process under the institutional form of transnational corporate organization bundled together a variety of industrial assets and made the material and financial use of them subject to the internal goals of the transnational corporations, thereby creating productive structures integrated transnationally but fractured domestically; more recently, the role of financial loan capital, particularly in those basic industrial sectors usually under public ownership in developing countries has been to secure guarantees via restricting the developing countries' choices over equipment suppliers, engineering consultants and management assistance. The net impact of this kind of incorporation has been to increase enormously the amount of industrial activity occurring on developing countries' territory but severely to circumscribe domestic control over inputs and outputs. The fact that many industries are not internally but externally integrated creates even bigger difficulties, since future decisions are mortgaged to present patterns of industrial organization.

International trade rules encourage the canalisation of developing countries' exports of manufactures within the transnational corporations' networks; access to industrialized countries' markets is preserved where the activities and products of developing countries are handled inside the transnational corporation, but where developed countries' firms attempt outside or independent activity in export markets, they are faced with severe and unpredictable barriers. Fierce opposition is raised against all efforts to focus international regulation on actors rather than issues so that, even where specific points of accords are revised, sight is lost of the total impact of the strategies of external actions on developing countries' industrialization.

Most of the industrial output produced in developing countries is sold in them: even in the most export-oriented of countries, the ratio of foreign to total sales of all manufactures does not go above one third. But most of that output is dependent on foreign industrial inputs of one kind or another: even under rigorous policies of import substitution, sometimes carried out in the developing countries placing relatively heavy emphasis on exports of manufactures, the impact has been more to change the character than to reduce the amount of industrial imports per unit of final output.

In the long term international transactions are bound to be further influenced by the growth of developing countries' industrial capacity. Impetus is given also to intra-developing countries' industrial redeployment. Enough skills and capacities have now been mustered in the more industrialized of the developing countries to make them capable of supplying industrial assets to other developing countries. The sales of equipment which were formerly the complete preserve of industrialized countries' enterprises will now be subject to some competition from some developing countries' sources.

The aim of industrialization policy should always be to try and generate a coherent structure with strong vertical and horizontal linkages. Sectoral aims, such as greater domestic processing of raw materials, the build-up of heavy industries, and the production of mass consumer goods, might best be viewed as complementary to the structural objective.

The industrialization plans of developing countries emphasize that they are determined to go ahead with rapid expansion of production capacity over a large range of sectors. In the more industrialized developing countries, the emphasis on the heavy industries is pronounced and all of these industrializing countries are planning increases in production capacity in industries such as iron and steel, petrochemicals and other branches of the chemical industry, transport equipment and infrastructural investments. The aim is to achieve a more diversified, more coherent and more sophisticated industry structure in as short a time as possible. The substantial input requirements for such expansion, it is recognized, will involve these countries in intensive use of foreign resources; the strategic preferences of these developing countries are, as far as possible, to obtain external resources with minimum direct foreign control of equity. The role of public sector enterprises in this endeavour is frequently underlined in the industrial development plans of the developing countries.

Those developing countries which have, at present, weaker industrial structures are attempting to extend their activities in ways which will permit them to shift away from the heavy dependence on labour intensive forms of production. By and large these are countries in which such industries as food processing, textiles, clothing, leather and leather products, and some parts of electronics tend to be the most important industrial activities at the present time. The aim now seems to be a move towards metal-working industries and related activities which will permit a greater growth of technical and managerial skills. In these countries, as in the more industrialized ones, every effort will be made to increase the degree of local processing of raw materials and to secure access to foreign markets. But even where foreign resource requirements are substantial, there seems little doubt that rapid rates of expansion of industrial capacity will be registered in many sectors throughout the next decade.

1.2 The developed countries

In the developed market economy countries the slower overall growth in the 1970's tended to reveal a number of partly interconnected phenomena originating mainly in these economies and causing similar impacts in all of them. These phenomena are (i) technology advances that radically change products and processes, (ii) changes of final demand, and (iii) energy and environmental constraints. In addition, (iv) some developing countries have begun to enter international markets with certain categories of manufactures.

As is shown in Chapter C, the major causes of labour displacement are technology developments, changes in final demand and/or trade with other developed countries. The share of developing countries in developed countries' (market economies and centrally planned economy countries in Europe) total manufactured imports was 6.2% in 1974; for all OECD countries the share was 9.7% in 1977. Though rising, manufactured imports from developing countries therefore are still small. Manufactured exports from developed to developing countries have increased significantly: indeed, the high import propensities of developing countries mean that any increase of their export earnings together with the resulting increase in the ability to obtain credits lead to substantial export increases from developed to developing countries. As is shown in greater detail in Chapter C and in other reports [1], developing countries constitute indeed a large and expanding growth market for developed countries' industries.

It should, however, also be recognized that the traditional international trade pattern is being replaced by new trends in the international division of labour. The developing countries are increasingly processing their raw materials and are gradually substituting a wide range of previous imports of industrial products. In international subcontracting arrangements, through affiliates of foreign companies and through an increasing number of domestic firms, developing countries are emerging as exporters of non-traditional industrial products, i.e., more capital-intensive products as opposed to the traditionally dominant labour-intensive products. Exports consist partly of manufactured goods which have merely been assembled in the developing countries, partly of the products of a complete production process. In the course of their industrialization, the developing countries will finance their manufactured imports to a growing extent with these manufactured exports. So far, only few developing countries are improving their manufactured exports to manufactured imports ratio, and presently only about 22% of the imports are covered by exports of manufactures. Intra-industry trade between developed and developing countries and internationalization of industry are increasing, however, and further increase can be anticipated.

One of the main findings in Chapter C is, that research and development, the early stages of the product cycle and highly qualified labour constitute the main fields of comparative advantage to the developed market economies, vis-à-vis the developing countries.

1/ See country reports listed in Annex 1 .

Technological innovations in industrial products and processes are therefore likely to continue to significantly influence the employment, production and foreign trade structures of developed countries. At the same time, however, the nature of interactions with the developing countries is affected as well. For instance, a large application of microprocessors in a number of "traditional" industries may not only have substantial effects on the structure and level of industrial employment, but may also reverse certain comparative disadvantages versus low-wage countries.

In present international circumstances, therefore, changes in any of the major industrialized countries will effect international as well as national relationships. For this reason it would seem imperative for developed and developing countries to try to co-ordinate their policies for participating in the changing international division of labour.

Developed market economy countries' industrial and trade policies appear to be directed to a large extent to supporting research and development, companies' exports to and direct investment in developing countries. On the other hand, policies affecting the domestic market tend to be increasingly geared to the maintaining of existing structures through subsidies and protectionism in those fields where manufactured imports from developing countries have shown to be competitive. Such policies would seem misdirected and may aggravate the long-run adjustment problem. Moreover, they may cause even more disruptions of developing countries' ongoing development processes. It is therefore important not to limit the attention to individual industrial sectors, such as textiles and shipbuilding, since this approach would reduce the adjustment considerations to short-term defensive approaches and could be used to "freeze" existing structures.

Hence, adjustment would imply on the one hand the actual management of structural changes, and on the other the identification and utilization of long-term convergencies of objectives in international developments. Increasing rigidities and constraints against an increased pace of the restructuring process are noticeable and should be taken into account in individual developed countries.

The most important adjustment constraint encountered by the developed market economy countries is the high structural unemployment as compared with past years in the post-war period. Full employment is a clearly defined priority objective in practically all countries. Generally speaking, increased trade with developing countries has, on balance, positive or negligible effects on employment and would contribute to a better overall allocation of resources, higher growth and less inflation. Such negative impacts of imports from developing countries as exist (structural or frictional unemployment and the decline of certain activities) are very often concentrated in particular industries and regions or on specific types of workers.

In most of these countries the already economically weakest regions and branches, for which few alternative economic opportunities seem to exist, face the greatest adjustment problems. The consequence is that the negative effects initiate political pressures on the government for defensive policies, and the positive effects do not in the same way support governments in implementing positive adjustment strategies. In any case it should be recognized that a market-induced structural adjustment process may cause an aggravated concentration of economic activities in a country in respect to regions and companies and that also the socially weakest groups (skill-, income-, sex- and agewise) in the society may be particularly affected. It can be observed that labour in many developed market economy countries shows concern and resistance to any further increase of the occupational and regional mobility of workers as would be required by a market-induced adjustment process.

Finally it can be pointed out that enterprises in some developed countries may be faced with certain financial constraints for affectuating major transitions into new processes, products, energy sources and environmental protection devices. There are indications that the companies' adjustment - especially if unforeseen - involves high risks due to uncertainties of the future pattern of development, large investment outlays both in terms of research and development and plant and equipment, and long gestation periods. The prevailing financial system in many developed market economies may be strained by these facts.

The costs and constraints related to structural change are obviously particularly high when the adjustment pressure is unforseen and requires quick response. An awareness of the causes costs and constraints, of the limits in pace and of the social implications, would be a pre-condition for the design of an effective policy. An active adjustment policy - anticipatory in nature - can be seen as a necessity for limiting further social disparities and disruptions.

On the basis of the above and the findings reported on in Chapters B and C, a number of issues for consideration by the Third General Conference were put forward in the official Conference Note. These issues which are elaborated and substantiated in the following sections should be seen in the context of the following guiding principles:

(a) A first principle would be the encouragement of increased redeployment from more advanced to less developed countries. To this end developed countries would need to adopt a set of consistent government policies, affecting both internal and external resource allocations and trade flows and covering industrial structure, labour, trade and official development assistance. Aided by the international community, developing countries would have to remove obstacles preventing redeployment.

(b) A second principle is the acceptance of the long-term nature of the redeployment processes and a commitment of the various actors to corresponding policies and measures.

(c) A third principle is the necessity of establishing a pattern of mutual benefit and equity when formulating specific collaboration schemes. This implies also the pursuance of "fair" policies and practices by the actors in trade and commerce.

(d) Fourthly, the individual actors in the redeployment process must recognize the sovereignty of nations and the legitimacy of the pursuit of national objectives and priorities in accordance with the particular economic system of each country. This implies clear pronunciation of national objectives and policies, and close international consultations. There is thus a need not only for an internal consistency in individual countries' policies as laid down in the first principle, but for the inclusion in these policies of a recognition and consideration of the other co-operating countries' national requirements as well, in order to attain an international harmonisation of policies.

2. Issues Pertaining to Developing Countries

2.1 Basic principles

Foreign resources can only make an effective contribution to the industrialization of developing countries when the countries themselves determine why foreign involvement is desirable and what purposes it can serve. The association of foreign resources with domestic industrial change is thus to be derived from a development strategy and not vice versa. A strategy for enhancing industrial capability, in its turn, should be a consequence of development strategy: the former is required for the contribution it can make to the latter.

To enhance industrial capability implies far more than increasing the volume of industrial activity carried out on the national territory. It means strengthening the capacity of domestic economic agents to generate, and control the deployment of, the financial, technological, managerial and legal inputs vital to the functioning of an industrial system. The requirement is of a qualitative improvement and not simply a quantitative expansion. With greater internalization of the control over industrial development processes, a country acquires a stronger bargaining capability and is in a better position to initiate rather than merely respond to moves for industrial redeployment.

Contemporary experience of industrialization in developing countries indicates that redeployment of resources among two or more countries does not take place as a neutral flow among equal partners. In current circumstances many developing countries participate from a position of weakness due to: (i) inadequacies in their internal organization and evaluation of redeployment, due in part to a lack of information on alternatives and in part to insufficient experience in the operation of laws and institutions designed to improve the flow; (ii) a seriously biased international framework, the acceptance of which severely limits the range of actions a developing country can take if it is to remain within conventional bounds and distorts those measures which are permitted. To ameliorate present conditions therefore requires concentrating on issues both national and international.

Attention could be focussed on the following areas for action, guided by the need of developing countries to acquire the maximum degree of knowledge about and control over the industrialization process in their territories:

(a) The scope and activities of domestic institutions and policies affecting redeployment;

(b) Increasing the transparency of existing channels of resource flow and increasing the range of agents and forms through which resource flows occur;

(c) Altering the international superstructure in which redeployment negotiations take place;

(d) Measures to promote much greater co-operation among developing countries in redeployment i.e., to encourage intra-developing country redeployment;

(e) Acquiring knowledge about possible future shifts in the international industrial structure and long-term strategies and what they may imply for the industrialization of developing countries.

These all offer a basis to assess better which resources are needed; when they are required; from whom they should be obtained; what ways should be used to acquire them; and how can they be deployed at home so as to ensure that future transactions (where necessary) can be undertaken from a still stronger position.

2.2 Domestic policies and institutions

The basis for the formulation of policies is the determination of the country's overall development strategy and priorities. Two kinds of policies affect the redeployment process: those directed to screening, evaluation and negotiation of the import and use of foreign resources; and those aimed at promotion of resource inputs (usually confined to direct foreign investment) and search for alternatives. An active and effective approach requires that both be present in government policy. In practice, this is not often the case. Countries stressing promotion and search tend to be weaker on screening and evaluation while those with strong institutions to filter and bargain individual project proposals often give less attention to seeking out numerous alternatives among which to choose. Developing countries could give consideration to combining the most useful elements of each (evaluation and search) to improve their joint contribution.

The recent practice in developing countries has been to begin establishing laws which define foreign investment and technology, set out the broad conditions governing their import, and nominate institutions responsible for implementing these laws. Most promotional activities have been aimed at describing the advantages a particular country offers to foreign investors and indicating the main kinds of investment the country would welcome. Both sets of policy, however, have been handicapped by several obstacles which are, to a considerable extent, within the capacity of individual developing countries to remove. In either case, as noted in the Summary Report of the Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries,[1] "Developing countries should ensure that their policies related to redeployment are clearly articulated, stable in content over time, as far as possible, and enabling an effective administration".

The fragmentation in treatment of what foreign resource suppliers handle as a single package limits substantially the capacity of a government to evaluate the total impact of any redeployment project. It is a commonplace to say that foreign investment of the direct kind (establishment of production facilities in a developing country) involves various assets, of which financial capital may be the least significant, and that it frequently imposes restrictions on the degree to which the recipient country can subsequently enjoy freedom of action. It is less sufficiently realized that cash loans, especially the sort associated with large industrial projects, likewise bundle together many aspects of the project and impose restrictive clauses. Hitherto, while specific elements of projects have frequently been examined in detail and negotiated improvements to them have been made, the totality of a project and its impact on the economy is less frequently assessed. Industrial redeployment, whatever form it takes, generates effects on economies which run well beyond the current period. If developing countries fail to evaluate the total impact, advantages gained in specific areas may be lost.

---

[1] Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries - Vienna, 20 - 21 September 1979 - Summary Report (ID/WG.315/11).

Clear articulation of industrial development objectives supported by machinery to implement them is essential if redeployment is to mesh with national industrial strategy rather than to dislocate it. The Summary Report of the Seminar referred to above also noted that "Developing countries should increase their endeavours to identify and assess prospects and establish priorities for industrialization and on this basis set out the areas in which redeployment possibilities - covering inter alia technology and financial transfers - would be sought". 1/ Articulation of objectives cannot be seen as a one-shot 'pronunciamiento'. It is a process whose success depends on the ability to re-evaluate the role which distinct types of industrial projects are playing in the light of changing internal and external conditions. More particularly, if the growth in internal command over industrial resources of all kinds is taken as an index of coherent expansion, then projects must be monitored and where necessary adapted in the light of progress towards widening and deepening the domestic resource control. The mix of projects which a country wants to initiate will also, then, be subject to continuous amendment as will the criteria according to which the projects should be assessed. If the process implies institutional change, it

---

1/ Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries - op. cit.

should be remembered that this is often a conflictive matter: though it may be difficult to set up a new institution, it may be still tougher to dismantle, or alter the functions of, an existing one.

Many developing countries are severely limited by absence of information and its corollary, the presence of misinformation. To gather information, of course, has its costs, especially when it is by no means evident what value to place on different items. As such, there is a prima facie case for co-operation among developing countries in this area. Yet many aspects of the information issues are still best dealt with by individual developing countries themselves. In bargaining for a technology, a developing country itself must seek out data on the circumstances and options of the moment. Knowledge about financial market opportunities is something likely to depend heavily on individual country initiative. Where large projects are involved countries must try to find their own imaginative ways of putting together the linkages among markets for final projects, finance, technology and other resources: if they do not do so, they will be compelled to accept the resource packages offered by others. Wide-ranging pre-feasibility studies can be a way of searching out and indeed creating information of this type.

The scope of institutions and policies will not be identical across countries. What all developing countries can do, however, is organize their own direction of change and implement the decisions consistent with it. Redeployment covers a wide variety of economic agents and ways of utilizing foreign resources: with an appropriate domestic organization, that variety can be turned to advantage. Redeployment should not only comprise production capacities but also technical, research and development and marketing know-how.

2.3 Stimulating redeployment by a greater range of actors

The predominant type of industrial redeployment has been between enterprises in developing countries and large corporations (producers and financiers) in the developed market economies. Other possibilities exist, however. Thus, the Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries [1] noted that "Particular attention should be given to the promotion of redeployment by small and medium sized companies in developed countries. In this respect, developing countries should prepare and diffuse pertinent information to the companies concerned".

There are several reasons why developing countries may be able to improve the appropriateness of their industrial co-operation arrangements if they expand dealings with small and medium size firms of developed market economics. These firms are in general more disposed to engaging in minority joint ventures than are the large enterprises, the technologies which they use may in many (though not all) cases be more suited to the needs of industry in developing countries and/or easier to adapt, the financial conditions attached to their participation are less likely to be covert (transfer pricing) than those coming from transnational corporations, the bargaining power of these firms is likely to be much closer to that of local enterprises than is that of transnational corporations, and some of these companies operate as providers of industrial services, the supply of which helps developing countries in unravelling the investment/technology package.

At the same time, certain obstacles exist to the expansion of co-operation with these firms. The very fact of their smallness suggests they are likely to rate the risks of foreign activity more highly than are transnational corporations. Given that the latter have dominated the redeployment process, the laws and institutions currently in operation in the developing countries probably create some disincentives for the smaller enterprises, whose patterns of behaviour are not the same as those of the transnational firms and who are far less adequately equipped to deal with administrative procedures. Moreover, international organizations, especially those responsible for project financing, have been far less inclined to encourage the involvement of medium and small firms from the developed market economics in their industrial co-operation schemes with developing countries. Small and medium sized firms also generally lack the international marketing organization which under the given conditions is crucial for exporting from developed market economies. In short, the whole emphasis of the current system towards bigness and how to cope with it places the smaller firms at a disadvantage. To a considerable extent, the developing countries alone cannot alter current pattern. What they can do is start to build networks of information with associations of smaller enterprises in developed market economies and build into their evaluation of alternatives the advantages in terms of internal market structure which could be harvested from encouraging dealings with less ubiquitous foreign enterprises. The relative importance of such firms is likely to be greater in smaller developed market economies which, on the whole, are less important investors in developing countries: a move towards smaller enterprises could thus at the same time be a move towards diversifying sources of foreign involvement.

---

[1] Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries. op. cit.

Given the limited information at present available on both possibilities and experiences, it may be necessary for developing countries to orient several of their specific promotional measures towards the smaller enterprises. In particular, financial arrangements, such as co-investment funds, could use their leverage to encourage involvement of smaller firms while it may be possible to offer similar support to the domestic enterprises engaging in joint ventures with such firms. Information should be as concrete as possible with the accent being on specific requirements of the enterprises in developing countries for external co-operation. The reason is that the small/medium size firms are much less likely to be attracted by general considerations of market size, overall economic policy of the domestic government and similar factors normally of considerable weight in arrangements involving transnational corporations. Moreover, as a fair proportion of the companies may be entering ventures in developing countries for the first time it is possible that their experience in handling such activities is no greater than that of local firms.

2.4 Co-operation with developed centrally planned economy countries

A greater exploration of co-operation possibilities with the centrally planned economy countries is warranted. The planned nature of those economies suggests they should be able to provide detailed information on availability of equipment, priority areas of industrial expansion (in general: the technologically advanced/high-efficiency branches) and expected involvement in foreign markets. The bilateral arrangements which characterize trade and payments with a centrally planned economy also have the advantage for developing countries that, through the mechanics of co-operation contracts themselves, the financing issue can be incorporated into the agreement, thereby helping to alleviate foreign currency repayment problems. Thus far insufficient attention has been given to devising better ways of expanding the contribution of industrial resources from centrally planned economies to the developing countries and more efforts should be devoted to this. The long-term planning system of the centrally planned economies should facilitate their active participation in the redeployment process. If they forego any kind of production for the sake of a developing country they have to obtain full guarantee from the enterprises as well as from the government that their demands for the respective goods will be covered, in due time, in good quality and at an appropriate price. This can be done within bilateral agreements between governments and between enterprises involved.

2.5 Less advanced developing countries

The impact of the present framework may be more serious for the less industrialized and smaller of the developing countries. Their individual bargaining power is not so great and they are less able to twist the rules in their favour: for them, it is important that the minimum procedures provide them with some protection and above all with some institutional resource in terms of the provision of economic, technical and legal information. It is for this reason that the ongoing negotiations over transnational co-operations, on technology (in the shape of the revision of the Paris Convention on Intellectual Property and the Code of Conduct), and UNIDO's industrial consultations cannot be allowed to rest as simply 'educational exercises'. While there is more awareness of problems now than there was at the beginning of the decade, awareness is an asset which needs to be replenished and utilized. There must be some permanent machinery created which developing countries themselves can develop and employ to strengthen their bargaining power and, above all, to drive home the fact that redeployment is a two-way process embracing much more than the maintenance of 'a good investment climate' by the recipient countries. The developing countries must have the means whereby the assets supplied to them can be used for their social advantage. If it can be shown that particular redeployment projects are not in the interests of developing countries but are in the interests of industrial country suppliers, it is the business of the international community, wedded as it is to the concept of a New International Economic Order, to protect the formers' interests.

?.6 Co-operation among developing countries

The very build-up of industry in developing countries has generated some of the technical conditions through which redeployment among them is now taking place and can expand significantly in the future. A broad sharing of aspirations regarding future paths of industrial change, and a certain complementarity of resources and needs, in turn offer the political and economic incentive to pursue intra-developing countries' redeployment. The presence of these conditions is one thing and the detailed identification of the assets relevant to industrialization which could form the focus of co-operation, the purposes of co-operation, the methods which could be used, and nature of benefits derived, is another. There is an urgent need to examine these issues and developing countries may wish to consider through what channels, including international organizations, such an examination could be undertaken. Regional co-operation arrangements such as ASEAN (on which a study is currently being undertaken by UNIDO) should pay attention to this form of redeployment.

The relevant assets currently available in some developing countries include: (i) the technical and administrative experience with which to handle foreign resource inputs; (ii) the capacity to produce capital goods and provide industrial services, particularly skills; (iii) the finance to support new projects; and (iv) raw materials critical to many industrial processes. The distribution within countries and among them, however, is highly skewed so that only in a few instances can a single developing country muster all the assets it needs from its own supplies. The problem, then, is how to organize co-operative projects of a kind where not merely the monetary benefits are distributed in an acceptable way, but where, and this is much more significant, the internalization of industrial skills takes place in all the participants. Co-operative arrangements among developing countries should focus heavily on programmes and projects designed to intensify the internalization of skills. Systematic exploration of the prospects for increasing existing arrangements both on the enterprise to enterprise and on the government to government level, and an evaluation of the benefits from them and obstacles to them has yet to take place in a significant way, one consequence of which is that there is still not too much known about the steps that might be taken to increase the co-operative projects. Given that some of the schemes which are operating appear to have generated good results, clarification of what is preventing further schemes from being initiated more rapidly is required.

The most direct benefit from expanding intra-developing countries' co-operation is that the density and transparency of markets for key industrial assets will be increased, thereby improving also the functioning of redeployment from industrial countries. But more important is the growth of the individual and collective self-reliance of the developing countries who can strengthen their internal control over the industrialization process. Redeployment cannot be treated as a goal but only as a way of promoting a qualitative improvement in industrialization in the developing countries. The stronger the developing countries become, both individually and collectively, the greater the changes that any redeployment which occurs will do so in an appropriate context.

2.7 Information on future structural changes

Redeployment is a continuous process which creates situations that, while they frequently provide opportunities, also generate costs. Developing countries need regular information about likely shifts in at least four dimensions of the process: (i) sectors and activities where industrial countries are planning to reduce their local production; (ii) new technologies and products which may be introduced in industrial countries and which are likely to affect industrialization patterns in developing countries, positively or negatively; (iii) changes in demand configurations and resource requirements in industrial countries; (iv) expected developments in the strategies of the main actors. Hitherto developing countries have mainly been re-actors instead of actors in redeployment with the result that the types of industrial activity located on their territories have not always matched local needs and that changes in those activities have occurred at times and in ways more convenient to the aims of industrial countries'economic agents than to the local economy. This is an aspect of the relationship between the more powerful and the less powerful entities in the world system: the latter are treated as the object of examination rather than the subject of change. Part of the process of strengthening developing countries participation is precisely that developing countries should begin to observe and study the patterns of change within industrial countries so that the former should both be better prepared to cope with adverse shifts and to take advantage of favourable ones.

The information requirements cannot be met without some commitment of resources to gathering, analysing and disseminating the information, possibly buttressed by support groups able to show how the information can be put to use in specific countries and circumstances. Developing countries may wish to consider the most adequate ways of handling these requirements, drawing on existing resources within developing countries themselves, within international organizations, and in non-governmental bodies located in the industrialized countries. The range of support which might be forthcoming for such endeavours is potentially quite wide since the groups affected by future shifts include substantial segments of the labour force in industrialized countries.

2.8 Further action by developing countries

In the Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries held in Vienna 20 - 21 September 1979, the following proposals were made for action by developing countries.

(a) Developing countries should ensure that their policies related to redeployment are clearly articulated, stable in content over time, as far as possible, and enabling an effective administration. Special emphasis should be given to promotional measures, including measures by private and semi-private institutions. Particular attention should be given to the promotion of redeployment by small and medium sized companies in developed countries. In this respect, developing countries should prepare and diffuse pertinent information to the companies concerned.

(b) Developing countries should increase their endeavours to identify and assess prospects and establish priorities for industrialization and on this basis set out the areas in which redeployment possibilities - covering inter alia technology and financial transfers - would be sought.

(c) Developing countries would need to systematically examine tariff and non-tariff barriers in the developed countries affecting, in particular, the industries identified as having a redeployment potential.

(d) Developing countries should provide preferential treatment and incentives to foster redeployment among developing countries.

3. Issues Pertaining to Developed Countries

3.1 Adjustment policies

Structural adjustment in industrialized countries would be significantly facilitated firstly, by timely recognition and prospective analyses of the restructuring process by the actors, gaining, on a continuous basis, deeper insights in its changing nature, determinants, course, pace and implications than has been the case so far. Secondly, it would be essential to analyse and evaluate rigidities and constraints that social, economic, security and other considerations constitute for the actors in the restructuring of industry. Thirdly, there would be an obvious need for individual countries to determine their broad course of action, their long-term development objectives and strategies on the basis of likely scenarios. In this connexion the recognition of possible internal and external conflicts of interest would be, fourthly, of great importance. Fifthly, it would be necessary to conceive and apply consistent government policies and financial and institutional measures in order to facilitate and support the actual restructuring of production at the company level.

Four of these five considerations can be seen to constitute a system of adjustment measures which is anticipatory in nature. These measures can be grouped into two categories: (i) a set of analytical instruments, and (ii) a set of policies and measures to facilitate the reallocation of resources including active employment policies.

These two sets of measures should be seen closely connected with a number of possible actions for supporting active industrial redeployment to developing countries. In putting forward these issues, the Secretariat appreciates the fact that the specific economic system prevailing in a particular country will be a decisive factor for considering the precise scope and context of a set of adjustment measures. For most developed market economy countries anticipatory structural policies could not be interpreted to cover structural planning by the government, nor the issuance of official, possibly self-fulfilling prophecies, for instance through a rating of the performance of companies. Similarily, governments of most of these countries would hardly be in the position to engage, on a regular basis, in direct enterprise decisions nor to guaranteeing the demand for specific products over extended periods. Centrally planned economy countries, on the other hand, would seem to be institutionally equipped to more directly and systematically steer the restructuring process in the framework of their national plans, although various other constraints in terms of timing of the reallocation of resources, securing supplies etc. may exist.

3.1.1 The establishment of analytical instruments

As a basis for the formulation of anticipatory policies, analytical research and prospective analyses of structural changes would need to be undertaken in the individual developed countries on a continuous basis. This entails an assessment of the effects of the various determinants of structural changes in industry and a regular surveillance on the national level of pertinent trends in industrial subsectors as to the development of technology, final demand and international trade. It should be stressed that this research would not be directly concerned with prospects or market analyses of individual enterprises. The focus would lie on an assessment of major trends in the development of structural determinants. In addition to estimating market induced trends, considerable attention would need to be given to normative indications. This implies that the policy-maker would attempt formulating structure preferences. Also indications of trends in government expenditures, actions affecting the consumption pattern, directions of public R + D programmes, international industrial co-operation agreements etc. as well as the likely implications thereof, would be essential inputs into the analytical system.

An integral part of a structural surveillance scheme would be the regular dissemination of the findings to the government, industry and labour organizations and the other actors mentioned previously, with the provision that the decision-makers take full account of the pertinent information. For the government, this information should be seen as particularly useful for the assessement of the consistency and the effects of policies and actions. Companies would be able to use the information in formulating their adjustment decisions.

In some developed countries structural surveillance schemes have been recently established. In the Federal Republic of Germany, for instance, a reporting system on structural changes was initiated by the government. It involves analytical work on recent structural changes by five independent economic research institutes and reporting on the findings to the Ministry of Economic Affairs.

A more elaborated surveillance scheme for servicing the decision-makers in government, industry and labour organizations would imply the use of a system of indicators pertaining to developments which are of particular relevance for specific industries sectors. The most important indicators would be: cost-benefit calculations of protection, import penetration ratios, export ratios, actual and expected changes of prices and/or supply of necessary raw materials, major technological breakthroughs and investments in the relevant export-oriented branches in low-cost countries. Based on such a set of indicators, an "early warning system" could be established that would facilitate timely responses by decision-makers to crucial developments. The system would require qualification and monitoring of the set of indicators and projection of selected variables (output and employment) for a selected number of industrial branches.

Since most of the determinants of structural changes have an international dimension, it would seem important to establish an international exchange of pertinent data on the development of these determinants. Obviously also the developed centrally planned economy countries would need to participate in this exhange by periodically disseminating to the international community relevant aspects of their specialization and co-operation plans.

3.1.2 Policies and measures facilitating resource reallocation

Rather than subsidizing ailing industries through protectionism - which, as Chapter C and the country studies show, is counter-productive in the long run - and "exporting" adjustment needs to the trading partners, a range of policies and measures would need to be established to ensure on the one hand, adjustment through timely reallocation of resources in the domestic economic structure, and on the other the redeployment of certain industrial capacities to developing countries.

Structural adjustment policies for the domestic economy should be regarded basically as a means to restore the viability of the industrial sector by facilitating economic units to change to other processes, products and/or locations, as called for by changing parameters. The role of the Government in a market economy country would thus be to induce and support enterprises in undertaking the adjustment and - on the other hand - to ensure that social costs are minimized and national socio-economic considerations are accounted for.

In applying the policies, one might distinguish between various economic agents according to their ability to act and adapt: (i) those which adapt themselves in any case; (ii) those which can no more be adapted; and (iii) those which have prospects but require guidance and/or support for adaption. Specific measures should obviously be directed towards the last category, whereas a more general policy framework would normally suffice for the first category. A major goal would be to assist enterprises to develop product differentiation leading to a larger intra-industry trade.

Various measures are already being, or may be, applied in individual developed market economies to support domestic adjustment by facilitating skill developments, the mobility of manpower, the development of new technologies for products and processes, and the application of these technologies. Among such measures, the establishment of national or regional funds for financing adjustment has been seen by a number of governments as an appropriate instrument to supplement market mechanisms. Special research and development institutions have also gained importance. In one European country (Belgium), for instance, a national investment company was set up with the function to provide managerial services on a temporary basis to companies facing serious structural problems in order to assist in carrying out the required restructuring. In another country (USA), the advice and assistance rendered to companies are reported to cover, besides management, also technology, in particular production innovation, marketing and other related services.

The structural adjustment funds in operation in various countries are primarily aimed at providing financial means for companies' restructuring programmes. It has been attempted in some cases to create a close linkage through the fund between domestic policies and development co-operation. The use of the fund would include stipulations in this regard, for instance by requiring a large set of pre-conditions to be met before a project can receive financial support. Too complicated procedures seem, however, to occasionally hamper the full use of the fund.

It has therefore been suggested, to rather let the fund be administered jointly by - on the one hand - the authorities responsible for industrial policies and - on the other hand - by development co-operation agencies. This arrangement may very appropriately contribute to attaining policy consistency. In any case, there seems to be a consensus that such a fund should be used for restructuring purposes in general, and not exclusively for those structural changes which can be proven to be originating from increased trade with developing countries.

The purpose here is not to suggest any specific additional policy instruments to be superimposed on the already prevailing policy mix, but to advocate that this mix be rationalized or improved where necessary by taking into account the considerations of a better international redeployment of industries. Thus, for example, where factor markets are distorted either through policy or structural rigidities, the adjustment policy should aim at reducing such distortions. In addition, it would also contribute to improving the structure of incentives in such a way as to encourage the industries or branches of industries which can make a positive contribution both nationally and internationally. A crucial element is that such a policy should have an anticipatory element so that the selective use of incentives and disincentives would not only be appropriate, but also timely.

A regular exchange of experience and reporting on adjustment policies in individual developed countries and an analysis of their domestic and international implications, as well as their consistency with other policies and measures, would need to be undertaken at the national and international levels. To this end, it is proposed that suitable institutional arrangements be conceived.

Due to adjustment constraints for social, security and/or supply reasons, a government may decide during a certain transition period to delay restructuring and to exempt specific manufacturing activities and/or locations from a further rationalization that would be called for by technology and/or trade developments. Such a decision would need to be based on an analysis of the economic consequences not only for the country itself but also for its trade partners so as to avoid a mere shift of possible disruptions. An official statement regarding the features, the timing and implications of such a policy, together with appropriate compensation for possible losses accrued to developing countries would be called for.

In pursuing international industries' co-operation in the increasingly internationalized production and commerce, it would need to be ensured that autonomous actions by individual governments are limited to prevent international disruptions and trade-diverting effects and in particular stagnation in development processes of the developing countries. There would thus be a need for international co-ordination.

Developed, centrally planned economy countries obviously in their economic system have both the means and the experience of long-term planning as a basis for co-operation. Nonetheless, an increasing contribution to effectuating a change of the international division of labour would call for a growing consideration for the industrial development aspirations and requirements of the developing countries in the national development plans of the centrally planned economy countries in which industrial expansion still dominates (contrasting with the growing dominance of the service sector in the developed market economies). This implies that industrial co-operation - covering transfer of resources, provision of skills, etc. and importation of developing countries' manufactures - should constitute an increasing element in the long-term industrial strategies and plans of the industrialized countries in question. In the ongoing industrial specialization process of centrally planned economy countries, a direct linkage would thus be established with individual or groups of developing countries.

Hence, it would seem essential to analyze long-term expectations for increased and diversifying co-operation between centrally planned East European countries and developing countries. The principal pattern of trade between centrally planned countries in Eastern Europe and developing countries was characterized in the recent past by a high proportion of capital goods and intermediate products being imported by the developing countries, whereas primary products and raw materials accounted for over 80 per cent of their exports to the East European countries. This traditional pattern would seem, in the future, to be undergoing changes to accommodate the long-run gradual industrialization process of developing countries and new diversified patterns would be expected to evolve, on the basis of mutual interest and commitment. To this end it would be necessary to jointly identify those changes that are long-term in nature.

3.1.3 Employment

General

A particularly important element of the industrial restructuring process in developed market economies, is the attempt to maintain full employment.

Rapid technological development related to industrial products and production processes leads to an ever-increasing productivity of labour. Indeed, productivity increases have, especially in the last 10 - 15 years, been very dramatic, as the country studies have repeatedly shown. In a situation of low overall growth and stagnating demand for manufactured products, this has caused rising unemployment. This unemployment constitutes a financial burden and has social consequences as well. It is not evenly distributed over the whole of the working population: groups like the unskilled, the young and women are particularly hit. Under the circumstances, there is a need for national policies dealing with the unemployment problem, in the context of a general adjustment of the individual economies to the changes in the world economy. In the preceeding pages reference has already been made to increasing the adaptibility and mobility of production factors; certain more specific issues pertaining to employment will be singled out now. More detailed information about employment will be found in Chapter C.

Reorienting employment

Firstly, those measures could be mentioned that may contribute, in particular, to increasing the timely labour absorption in new manufacturing activities. Several countries have indeed established retraining schemes for adapting labour to changing requirements (see Chapter C, section 6.1). The close tying-in of these schemes with an "early warning system" as mentioned above, would warrant due attention. For the longer-run adaption of the labour force, it would be necessary at the national level to identify the changing qualification requirements and on this basis possibly re-orient the country's educational and training systems.

Another potential sector for employment generation in the restructuring process is secondly, the services sector. The possibilities to increase employment in this sector would seem to warrant due attention. Services could be divided into three categories:

(i) consumer services which satisfy final demand;
(ii) industry services which satisfy the demand of industrial principals or which are connected with industrial production sectors; and,
(iii) government services which cover both intermediate and final demand.

Generally, income elasticity for demand for consumer services is high, particularly those services that are connected with an increased leisure and various other personal services. However, it is quite likely that both increasing labour costs and high marginal rates of income tax for the (potential)suppliers of services may constrain final demand. Hence, if these services are to be expanded - and there would seem to be significant potential demand for various services - appropriate government incentives would be needed for stimulating actual demand and supply.

Industrial services - mainly research, design, production innovation, production sub-contracting, marketing and consulting organizations are likely to increase significantly in developed market economies. This increase will probably only to a limited extent effect the actual services sector, since it is to be expected that most of the industrial services will be incorporated into manufacturing companies. Thus, the industrial products will have a higher content of services. The industrial services tend to require special qualifications that differ from the actual manufacturing skills. This points to the need for an adequate and flexible educational system which would meet changing requirements. The role of government would thus mainly lie in manpower and educational policies and measures as well as in a change in investment policies, including both material and non-material investments.

The provision of public services by the government is an important determinant of the quality of life, or even living standards, in any society. *A priori*, the volume of employment in such services is most susceptible to policy intervention simply because it is possible for governments to act directly through changes in the level and in the composition of public expenditure. However, in times of low overall economic growth, as at present, governments in the industrialized countries are seeking to trim and cut public expenditure rather than to step it up. In the short run, therefore, labour absorption in public sector services is likely to be small, unless new forms of financing, organizing and the rendering of these services can be conceived and implemented. In the long run, public services could in any case well be an important element in the adjustment process.

Reducing labour supply

The population trends indicate that a decrease in labour supply in Europe will become evident in the mid 1990's. Already at this present stage these developments should be duly accounted for. Yet, the demand oriented employment policies may temporarily have to be supplemented by a gradual reduction of the labour supply, which might partly compensate for the likely decline in demand for industrial labour and at the same time enable a more equitable distribution of employment. During the recent years, discussions in a number of developed market economy countries have focussed on the investigation of the possibilities for gradually reducing labour supply by regulating working times, longer vacations, part-time jobs, etc. or for introducing expanded educational and training schemes. This last possibility could be seen as contributing to meeting qualification requirements called for by the industrial restructuring process as well.

Further measures

These could include:

(a) A reduction of the working life of those employed by a delay in entry into the labour force and/or through earlier retirement;

(b) Work-sharing arrangements;

(c) Reducing the social cost of unemployment by discriminatory measures in favour of disadvantaged groups and regions.

(d) Due attention may also be given to reducing the opportunity costs of unemployment through increased basic unemployment benefits, better pension provisions (including earnings related pensions), eligibility of the part-time employed to a fuller pension right etc. All these imply a willingness and the ability on the part of the State to finance such provisions, which again underlines the importance of the necessity to maintain a high level of economic activity, together with price/balance of payments stability.

It is clear that several of these measures require a revaluation of the concept of leisure in relation to income. The better use of leisure may imply some investment on the part of the economy, in terms of adult education, "re-education" etc., as well as provision of overhead social capital. The pattern of leisure-use itself will have an effect on the overall employment situation through increased consumption, e.g. of:

(a) Traded or non-traded (through foreign travel) labour-intensive commodities from developing countries;

(b) Relatively labour-intensive products in developed countries;

(c) Products of service industries;

(d) Capital-intensive durable consumer goods.

Workers' participation

An essential aspect of the restructuring process is the need for a greater involvement of the labour force in the national and international decision-making process. This implies that labour organizations would participate in the information gathering and dissemination, in the discussions at the international levels and in the decision-making relating to redeployment. The ongoing and expected rapid technological development and the changes in the traditional characteristics of branches, industrial processes, locations, comparative advantages, the position of manufacturing versus services, etc. would have particular implications for the labour force and should therefore be reviewed jointly with the labour organizations.

3.2 Public support to redeployment to developing countries

In order to facilitate redeployment of industries to developing countries, it would seem essential that public support be provided from the side of the developed country to individual industrial companies. This would enable primarily small and medium-sized industrial companies, which do not possess the required experience and resources for initiating and carrying out on their own a transfer of investible resources, know-how etc. to developing countries, to become involved in industrial co-operation.

Small and medium-sized companies play a major role in the industrial sector in developed market economy countries. From various UNIDO surveys [1/] it was also found that these companies indeed have significant potentials for redeploying certain resources or activities to developing countries but that various constraints in many cases hamper the actual realization of these potentials.

In order to enhance the co-operation between the small and medium sized industrial companies and developing countries, public support would be called for in the field of finance, pre-investment studies,

---

[1/] See list of studies, Annex 1.

information on and contact with potential partners, packaging and supplementing of resources etc. A number of proposals for generally facilitating capital and technology transfers to developing countries such as proposals for suitable credit and investment guarantee systems, have been put forward in the report on the Joint Study on International Co-operation [1]. Only some specific issues can be mentioned here.

3.2.1 National industrialization funds for developing countries

A suitable form of official support to industrial redeployment, possibly directed primarily to the less advanced of the developing countries, might be the establishment in individual developed countries of a public fund for equity investment in the developing countries. Such a fund would permit further investible resources to be borrowed on the capital market and could also pre-finance relevant market and pre-investment studies in developing countries. Another essential function would be to acquire and provide pertinent information on the potential partner and the host country in general to the interested company. The fund could be used to encourage industrial redeployment by providing the initial momentum that would enable an interested entrepreneur in the developed countries to (a) obtain essential data, (b) establish requisite contact with authorities in the developing countries, (c) get assistance in the preparation for pre-investment studies, and (d) enter into a financial commitment with the backing of the public body. It would thus seem possible to combine the efforts of the entrepreneur and the resources of the public fund, on the one hand, with the local resources of the particular developing country on the other. The fund would be able to reduce risks of the partners and above all it would secure refinancing. It would also be possible to couple certain government controls and guarantees with the provision of capital to an investment project. In any case, a close scrutiny of the individual investment projects would be undertaken by the official fund agency to ensure that the project meets the basic criteria for which the funding was designed and which would account for national economic benefits and costs for the host country. A similar proposal was put forward in "Industry 2000 -; New Perspectives" outlining a trilateral industrial co-operation model with non-transnational corporations and defining the roles to be assumed by the host and home countries as well as by an international organization such as UNIDO [1/].

---

[1] Industry 2000 - ; New Perspectives . (ID/Conf. 4/3) United Nations, New York 1979.

It would, above all, be crucial that the ultimate beneficiary of the fund's resources and services be defined. The fund should be designed to assist medium- and small-scale industrial companies only and be directed primarily to the less advanced of the developing countries. To this end special terms may be considered for the least developed countries. Another possibility would be to direct the funds to a particular region of developing countries.

Funds similar to the type described are already operating in several developed countries [2/]. These funds typically are to act as a catalyst for the establishment of new ventures in developing countries. This is done through participation with share capital in joint ventures, granting of loans and financing of pre-investment studies.

There are indications that these funds, engaging in equity investment in developing countries, might encounter difficulties in providing sufficient staff for the control function as is required by a shareholder. To this end it might be considered to entrust an international or regional institution with this function on behalf of the bilateral fund.

1/ See Industry 2000 -; New Perspectives, op.cit. Chapter 6.5.2 - Mobilising the Potential of Medium-Sized Enterprises and other Non-Transnational Corporations; and paper prepared for UNIDO by L. Hoffmann and H. Sanders entitled Industrial Co-operation in the Field of Small and Medium-Scale Private Foreign Direct Investment in Low Income Developing Countries , Vienna 1979.

2/ Some of the funds are: The Industrialization Fund for Developing Countries (IFU), Denmark; the Netherlands Finance Company for Developing Countries (FMO); the German Company for Economic Co-operation (DEG), Federal Republic of Germany; the Swedish Fund for Industrial Co-operation with Developing Countries (SWEDFUND); the Commonwealth Development Corporation (CDC), United Kingdom; the Overseas Private Investment Corporation (OPIC), USA; the loan arrangement for the development of the economy of developing countries, Norway; the Belgian Investment Corporation (SBI); the Overseas Economic Co-operation Fund (OECF), Japan; the Pacific Islands Industrial Development Scheme (PIIDS), New Zealand.

Within the European Economic Community the Industrial Development Centre was set up to assist in establishing industrial co-operation between ACP countries and companies within the Community. The Centre's main functions are to provide information related to industry, finance and technology, to assist in the search for partners and in the establishing of contracts, to prepare pre-investment studies and to assist in contractual negotiations.

With the increasing number of bilateral, regional and international funds, it would seem appropriate to establish an international forum for reviewing and providing more systematically information on the established funds and for exchanging experience among funds' agencies. It can also be proposed in this context that the fund organizations should liaise with UNIDO activities in this area so as to enable a mutual utilization of information on redeployment opportunities and/or potentially interested partners in developed and developing countries. Such close linkages may substantially widen the scope for enterprise co-operation.

3.2.2 Official development assistance

Official bilateral assistance may be seen as a further essential form of official support to redeployment of industries. By increasingly directing bilateral assistance towards long-term industrial co-operation, it would be possible - jointly with the developing country concerned - to supplement project-bound enterprise resource flows, for instance, by providing training and finance for an appropriate physical infrastructure in the developing country. Further areas of assistance could be *inter alia* the administrative infrastructure, building up management and engineering consultancy capacity and creating the basis for linking the agricultural and industrial sectors.

It can be expected that particularly for less advanced developing countries, *programme-oriented* official development assistance might supplement and catalyse enterprise co-operation if directed primarily to the special conditions of this group of countries and to small- and medium-sized enterprises and if the development assistance contains a minimum of specifications. It is proposed that it be further investigated how such a packaging of co-operation measures might be arranged for different groups of developing countries without increasing tied aid.

3.2.3 Access to markets and marketing assistance

A basic requirement for the redeployment process is that developed countries ensure access to their markets for manufactures from the redeployed capacities in the developing countries, especially if the transfer of capacity was conceived as mainly export-oriented industry for the original markets.

It can be re-emphasized that, seen in relation to developed countries' consumption and total manufactured imports, the manufactured imports from developing countries are extremely limited. The share of manufactured imports from developing countries in total OECD manufactured imports was 9.7% in 1977 - in those of European OECD members only 6.2% (see also Chapter C, section 3.2). There is indeed significant scope for increasing these imports: in 1977, e.g. manufactured exports from European OECD countries were 4.3 times higher than the corresponding imports.

However, small- and medium-sized companies in most developing countries and in particular in the least developed group tend to lack the experience, information and contacts to be able to utilize potential markets for their products in the industrialized countries. Besides eliminating the market entry barriers and granting concessional access, it would be important for the developed countries to provide assistance to developing country enterprises for marketing the products and for gaining access to distribution systems. To this end it could therefore be proposed that in individual developed market economy countries a special marketing office be set up which would advise and assist developing countries (in particular the least developed of the developing countries) regarding market access for their manufactured products, especially those that emerge from an officially supported redeployment project. On request by a developing country, the office would carry out market research and provide information on regulations concerning market access, consumer tastes, various safety rules, feedback for adapting developing countries' products etc. It should also be attempted to link the office more directly to the bilateral technical assistance programme of the country concerned.

An international co-ordination and exchange of experience of these agencies might be considered to be undertaken possibly under the auspices of the International Trade Centre. In several developed countries' offices of these or similar 1/ agencies are already operating.

Given the important role governments play in regulating the flow of resources and commodities also between market economy countries and in creating the policy framework for industrial and labour market development in the individual countries, a government collaboration agreement between a developed and a developing country might be an effective means to ensure that resource flows and commodity flows between industrialized and developing countries are combined and that they are based on long-term considerations. Government collaboration agreements would also contribute to minimizing uncertainties of international involvements of the two countries concerned. Guidelines for the design of government framework agreements could be elaborated to adapt these agreements to the specific requirements of industrial co-operation between developed market economy countries and developing countries. Here, proper use may be made of the experience that was gained in "East-West" co-operation and in the co-operation between developed centrally planned economy countries and developing countries. In this connexion also the specific measures for ensuring market-access, such as "buy-back", bilateral production-sharing may be considered.

1/ Such as the Import Promotion Office for Products from Developing Countries (IMPOD) in Sweden.

4. Issues Pertaining to International Action

Most of the crucial issues connected with restructuring and redeployment of industries concern directly individual or groups of countries, their governments, institutions and industrial companies. However, in the ongoing process of increased internationalization of industrial production it becomes obvious that there is a growing need also for international action to ensure that the restructuring proceeds in a manner consistent and non-disruptive for all countries. Such action may involve:

(a) the compilation and exchange of pertinent information on the course of and constraints for industrial redeployment;

(b) the use of intermediaries between national decision makers; and

(c) the setting up of an international forum which may partially transcend the authority of individual states.

In the following some proposals along these lines are put forward for consideration by the international community.

4.1 Analysis and reporting on the industrial restructuring process

In order to be able to obtain an overview of the ongoing and expected changes in the international division of labour and to enable decision-makers in developed and developing countries to regularly be informed thereon, it would be essential to institutionalize the preparation of prospective analyses on structural changes and the dissemination of the findings at an international level.

To this end it may be considered to entrust UNIDO with the task to pursue its studies on restructuring in close consultation and collaboration with other international and national bodies. These studies would cover the five interrelated elements listed in the introduction of this report. 1/

1/ see page 1.

In the recent Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries [1] it was recommended that UNIDO should devote particular attention to the following matters:

(a) Examination and identification of structural changes in industrial sectors in the developed countries on a continuous basis including the pursuance of an "early warning system".

(b) Identification and compilation of specific potentials for redeployment and preparation and publication of succinct information pertaining to such potential.

(c) Review and monitoring of structural changes, resource transfers and major constraints including changes in tariff and non-tariff barriers specifically pertinent to redeployment, through studies and the development of appropriate indicators of structural change and redeployment. Regular reporting of these findings to the Industrial Development Board and the international community.

(d) Analyses and review of the requirements, conditions and institutional arrangements for promoting redeployment.

In pursuing the fulfilment of these tasks UNIDO would ensure that these studies would be consolidated and disseminated on a regular basis to serve decision-makers in developed and developing countries.

4.2 Redeployment services

As was pointed out above, there is a substantial need at the company level - especially in small and medium-sized enterprises - in developed countries for up-to-date information on plans, investment priorities and policies in developing countries and for guidance and assistance in terms of establishing contact with potential partners for eventual redeployment. Similarly, companies, development corporations and other relevant entities in developing countries appear to lack information on potential partners in the industrialized countries and/or of alternative sources for technology, know-how, management and investible resources.

---

[1] Seminar on Forms and Impacts of Redeployment of Industries to Developing Countries, op. cit.

In the previous section concerning developed and developing countries, it was advocated that efforts be made by these two groups of countries at the national level to collect and disseminate such information and to facilitate the actual redeployment process. While indeed it can be maintained that it would be at the level of individual countries that the major efforts would need to be undertaken, it can nevertheless be argued that there is significant scope for international action in this field as well. In fact, experience in the UNIDO Secretariat shows that an international information exchange on co-operation opportunities can play an essential role in fostering actual enterprise co-operation. The international measures would thus constitute an important supplement to the national actions in the more advanced of the developing countries. Similarly information on potentials for redeployment from developed countries (market and centrally planned economies) and from the more advanced of the developing countries would be disseminated to developing countries.

In view of the complexity of this task it is understood that UNIDO would rely to a large extent on the activities of corresponding national bodies such as the proposed national industrialization funds, the (UNIDO) investment centres and other industrial and commercial entities in the developed market economy countries.

In UNIDO the Investment Co-operative Programme Office (ICPO) and the Technology Group are presently engaged as contact brokers between interested parties in developed and developing countries. Due consideration should be given to the possibility of further enhancing these activities. This would imply that information on development plans, envisaged investment projects, technology requirements as well as on relevant regulations and conditions in individual developing countries be collected and passed on to potential partners in developed countries (both market and centrally planned economies) as well as in the centrally planned economy countries. In the centrally planned economy countries the chambers of commerce may be one of the major contact points. In the developing countries the investment boards, development corporations or planning authorities could serve this purpose.

It is expected that the gradual building up of an informal information network of this kind could greatly enhance international industrial co-operation. The proposed expansion of the UNIDO activities in this field may serve as a central point for the various bilateral redeployment institutions and funds. It could also be foreseen that these activities might contribute to the initiation and realization of trilateral co-operation agreements, involving more than one developed market economy and/or centrally planned economy.

4.3 Consultations

The continuous non-disruptive process of international restructuring of industrial production would, for economic, social and political reasons, require an institutional arrangement of regular consultations between the partners in development. It is proposed that the UNIDO system of consultations gradually be expanded so as to assume the responsibility for this function. The system of consultations could provide a forum for an international exchange of views and information affecting the gradual restructuring of world industrial production.

Document ID/Conf. 4/6 reports on the UNIDO system of consultations and contains a number of proposals. In the context of redeployment it may be particularily emphasized that the consultations could contribute significantly to having the attention of the actors directed to the long-term nature of restructuring. It would therefore be very essential not to confine the consultations to a sectoral approach but to add a broader dimension.

4.4 Reconciliation

It cannot be ruled out that individual developed countries, due to socio-political considerations, may wish to halt or delay the restructuring of their industries so as to safeguard domestic employment and/or production in specific industries or regions. In contradiction to the basic requirements for the pursuance of an internationally non-disruptive restructuring process, a country may, to this end, seek to impose policies which restrict imports from developing countries.

Unexpected introduction of barriers to entry may cause major effects on the exporting developing country. Especially for companies not belonging to transnationals it is difficult to re-direct exports or to diversify productions, and therefore major disruptions in sales and in foreign exchange earnings are likely to occur. In a situation characterized by a fragile industrial structure, balance of payments difficulties and/or a heavy debt burden , a cut-back on exports may cause severe disruptions for the economy as a whole.

A further implication of a closure of export markets is the discouragement of foreign investment in the developing country in question. In the developed countries' redeployment surveys, companies indicated that uncertainty about policies affecting a re-import of redeployed products constituted one obstacle to an actual realization of redeployment potential.

International reconciliation with the aim of preventing, limiting or as a last resort - compensating possible disruptions to those developing countries that would be affected by the protective measures would be called for. It would attempt to assess the costs and direct and indirect implications for the countries involved of the envisaged protective measures. In this connexion the duration, timing features and objectives of the measures would need to be examined.

It is suggested that consideration be given to setting up an appropriate forum for such a reconciliation scheme, preferably within a relevant existing international organization.

B. STRUCTURAL CHANGES IN DEVELOPING COUNTRIES

1. Introduction

The aim of this chapter is to present a brief description of the industrial development plans of some developing countries. The emphasis is thus on possible future restructuring of their industry rather than on the impacts of past redeployment. The information available is by no means as detailed as is desirable but the material presented does give an overview of sector priorities, project plans and possible foreign resource requirements in the coming years.[1/] The Secretariat will be presenting more detailed information in a series of working papers on industrial restructuring in developing countries which will be published subsequently.

The first section of the chapter summarises, in highly condensed form, some implications of the Lima target. The second section looks at some priorities especially pertaining to the more industrialized of the developing countries, and section 3 presents statistical material pertaining to some major industrial sectors. In the fourth section recent data pertaining to industrial restructuring among developing countries is summarized and section 5 goes on to consider, again very briefly, the possible strategic objectives of some of the main actors in the restructuring process in developing countries. The last section relates to some of the possible issues for consideration by developing countries in the light of their industrialization aims and the availability of domestic and foreign resources.

1/ Unless reference is made to other sources, country data have been taken from the relevant national development plans; for full reference to these, see the UNIDO report, Implementation of the Lima Declaration and Plan of Action, The Country Situation and Contribution of International Organizations, ID/238, November 1979 (ID/Conf.4/4).

2. Implications of the Lima Target

The broad implications of the Lima target have been set out in UNIDO's Industrial Development Survey [1] which indicates that the achievement of the target with regard to manufactured value added would imply an annual growth rate of 10.5% in manufactured value added for the developing countries from 1975 to the year 2000. According to this scenario 12.5% of world manufactured value added would at the end of the century be generated in Latin America, 9.5% in South and East Asia, 1.8% in West Asia and only 1.5% in Africa. On a per capita basis Latin America would have a manufactured value added more than four times that of South and East Asia and more than nine times that of Africa. But even the Latin American figure, though about twice the 1975 proportion, would only be some 40% of the estimate for the industrialized countries. The trade implications of this setting would call for manufactured exports to increase faster than manufactured value added in developing countries (a recent forecast suggests an average annual rate of about 12.2% between 1975 and 1985) while intra-developing countries' manufacturing exports would have to rise even faster.

The composition of developing countries' industrial exports would likewise alter with a general shift towards more highly processed goods and greater intra-branch exchange. Those developing countries (the large majority) which currently only have limited exports of labour intensive manufactures would significantly increase their share of that trade and could become exporters of such products to the smaller group of semi-industrialized developing countries which at present dominates the stage as far as exports of industrial goods are concerned.

Achievement of the Lima target along the lines sketched here would require a massive investment outlay, of the order of about one third more as a proportion of GDP than has been observed in the recent past. It would appear most unlikely that resources of such a size could be forthcoming from developing countries' internal supplies alone.

---

[1] World Industry Since 1960: Progress and Prospects - Special issue of the Industrial Development Survey for the Third General Conference of UNIDO (ID/Conf. 4/2).

The sectoral studies so far undertaken by UNIDO give an indication of plausible development prospects in certain important branches of industry. At the present state of empirical investigation, however, it is not clear to what extent these individual sector estimates are compatible with each other or with fullfilment of the Lima target as described above. Most of the industry studies themselves present alternative scenarios on the basis of varying assumptions about future conditions in the industry. The figures below therefore only hint at some broad implications of the Lima target.

For the agro-industries, a growth rate of about 7.8% a year for 1975-2000 is targeted. Given that projections up to 1985 show that the developing countries' share of world output will alter little as compared to the 1975 figure of 13%, the growth rate in the last 15 years of the period would have to be extremely high. To reach the targets set would thus require a drastic change in the location map of this industry: at present the location of agro-industries corresponds neither to the distribution of the population nor to that of the raw materials. The UNIDO study [1] of this sector suggests that investments of the order of 130 billion dollars would be required strictly for the creation of new agro-industries.

In certain sectors, such as vegetable oils and fats and leather and leather products, developing countries could well account for more than half of world output by the end of the century. Attainment of such market shares, however, would imply a movement towards more high rate production in those industries and generate significant demands for foreign financial and technical inputs. For agricultural machinery the central problem is not that of achieving the aggregate rise in production but rather of determining what types of equipment should be produced within developing countries. At present some 90% of the hand tools and from

---

[1] Draft World-Wide Study on Agro-Industries: 1975-2000, UNIDO/ICIS. 65 12 December 1977.

40% to 60% of the simple machines used are produced in developing countries but their total value compared to world output of agricultural machinery is very small. At present the developing countries' share of world production is probably around 5%.

In the iron and steel industry developments have been very rapid in developing countries in recent years and are expected to continue. The developing countries' share of world production of iron and steel in 1977 was of the order of 11%; developing countries are expected to increase their steel making capacity by some 12% a year up to 1985. UNIDO has calculated that actual output in that year (on the assumption that production growth at 8% per annum remains below the growth in capacity) would be around 140 million tons or about 15% of the global estimate. On the further assumption that the increase in output remains close to 8% per annum up to the year 2000, total developing countries' production in that year could be around 380 million tons.

Data for the petrochemical industry suggest that, according to the assumptions employed, developing countries' share of world output at the end of the century could range from 18% to 35%; whatever the assumption used, the relative share would be greatest for production of plastics and least for production of rubber. In the case of fertilizers also production capacity in developing countries would grow at differential rates according to the type of fertilizer considered, with expansion of potash production being the fastest, followed by nitrogenous fertilizers and phosphorus. By the end of the century, fertilizer output in developing countries could be around 31.6% of the global total but to achieve this it would be necessary to install in developing countries, on the average, 72 new plants per year between 1982 and 2000.

The capital goods sector is also one with great heterogeneity. As of now developing countries account for only 3% of the value of world capital goods production; preliminary investigation by UNIDO suggests that the global share could reach around one sixth by the year 2000.

3. Country Priorities

In order to obtain an indication of the developing countries' desired industrial development pattern, the Secretariat is examining on a recurrent basis, the development plans, future sector priorities and major investment programmes for individual developing countries in the next years to come. Some of the main findings for a few of the more advanced developing countries in sectors important to them are summarized below.

Brazil

In the current national development plan the industrial sectors given priority are capital goods (especially heavy equipment); basic electronics; and basic inputs industries (non-ferrous metals, petrochemicals, fertilizers, paper and pulp, cement, iron and steel, alcohol and caustic soda). In iron and steel, domestic supply is expected to rise from 13 million tonnes in 1978 to 15.6 million tonnes in 1980. The objective of the sectoral programme is to promote self-sufficiency. 1/

It is expected that domestic supply of capital goods will make a significant contribution to the execution of ongoing and new projects. The expansion of capital goods production has indeed been very substantial in recent years and is likely to continue to be rapid.

For non-ferrous metals the industry programme aims at self-sufficiency in the more common products by 1983 together with planning, establishment and development of the special non-ferrous metals industry during that period. Aluminium production capacity in 1977 was equal to about two thirds of apparent consumption and it is planned to increase that proportion to 73% by 1980 and 86% by 1982 when production capacity

---

1/ Expansion in progress includes completion and further modification of the Acos Finos Piratini scheme so as to be capable of producing 300,000 tonnes per year. The expansion of the Usiminas project and the establishment of Acominas and Mendes Junio are the most important iron and steel projects currently being implemented; in addition to them, financial negotiations for reorganizing the Turarao plant have been completed.

should reach 503,000 tonnes per year. For zinc, capacity should reach 100% of apparent consumption by 1980.[1] In 1980 primary copper supplies will reach around 58% of domestic demand and in 1982 full self-sufficiency should be attained with a production capacity of about 336,000 tonnes per year. The self-sufficiency ratio for lead production should reach 89% in 1980. For nickel the ratio should be around 53%. To this end a new plant should begin operation in 1981 and allow installed production capacity to reach 12,000 tonnes per annum by the following year.

The Brazilian petrochemicals programme also aims at the achievement of self-sufficiency by the beginning of the 1980's and several major projects for the production of dichloroethane, polypropylene, aromatic derivatives and olefin derivatives have begun production within the past 18 months or are about to begin production.

The National Fertilizer Programme has set 1980 targets of 1.4 million tonnes for nitrogenous fertilizers, 1.6 million tonnes for phosphate fertilizers and 1 million tonnes for potassium products.

Brazil is considered to have great potential for becoming a major producer of paper products with possibilities for exports of certain types of products. For production of cellulose the value of investments to be realized in order to meet the planned expansions of production capacity by 1980 is of the order to 16 billion Cruzeiros of which around 3.4 billion are expected to come from foreign sources; about 45% of total financing would be supplied by the National Economic Development Bank (BNDE).

Ecuador

Recent measures have been taken to establish and develop the automotive industry in the context of the sectoral development programme

---

1/ Expansion of the Companhia Mineira de Mextais and establishment of the Paraibuna and Morro Agunda projects are critical for achieving this goal.

being carried out by the Andean Pact member countries. Co-production and assembly agreements have been signed with Venezuela such that Ecuador will, in the future, manufacture heavy trucks even though production of these vehicles had not originally been assigned to the country under the automotive sectoral programme. The government has completed the process of evaluating bids for the production of passenger cars and categories of trucks which were originally assigned to the country. It is estimated that by 1983 the production of vehicles and automotive components will be worth around $300 million or no less than 24% of Ecuador's gross industrial product. The value of vehicles and components exported in the same year is expected to reach $250 million which means that cars and trucks will become the most important of all manufactured exports in that year and the second most important of all exports. Some 10,000 jobs will be directly created in the industry and a considerable stimulus can be expected for associated industries as well as to national technological development by bringing about the mastery of such technologies as casting, forging, precision machining, stamping, and the heat treatment of metals, all of which are new to Ecuador.

Two petrochemical complexes are to be built as a result of assignments to Ecuador within the Andean group, and work on these is currently at the study and promotion stage. The ammonia-urea complex will have a capacity of between 1000 and 1500 tonnes per day. The other project is for petroleum cracking and will take advantage of the local supplies of crude petroleum. Pharmaceutical production facilities are being established in the country by foreign companies, probably as a result of an incentive programme.

In the iron and steel sector a project is to be implemented using the direct reduction system and having an installed capacity of 400,000 tonnes of steel a year.

Egypt

Industry and mining currently account for about 1/5 of the GDP. Under the five year development plan 1978-1982, a substantial expansion of already important industries such as food processing, cotton textile production and petroleum refining is envisaged. The priority sectors in the plan include foodstuffs, chemicals, engineering products, metallurgy and building materials. In these sectors foreign collaboration is welcome and the government has a relatively favourable policy towards the encouragement of private sector investment from abroad.

India

In India capacity and production targets for 1982-1983 have been fixed under the current plan and the plan document given output estimates for some sectors up to 1987-1988. The figures indicate that plan priorities particularly for public sector investment are directed towards petroleum, steel, coal and fertilizer industries. Joint and co-operative projects are expected to contribute towards significant expansion in the fertilizer, cement, paper, textiles and other industries. For the plan period up to 1983, mining and manufacturing value added was expected to grow at a rate of 5.3% per annum and in the subsequent five year period at 6.8% per annum. A general strategy to increase exports of engineering products is discernable; the principal products are expected to be metal products, plant and machinery, transport equipment and consumer durables. The institutional machinery for creating and sustaining manufacturing exports has already been established and no major difficulties are expected in this regard. In certain fields, however, it will be important to improve the level of manufacturing technology and increase plant size in order to obtain adequate production costs; this seems to be particularly the case for cement, iron and steel and rubber goods.

Indonesia

The principal growth targets drawn up for the 1979-1984 programme are an expansion of food processing at a rate of 8.5% per annum, textiles at 13.9%, building materials at 10.6% and steel at 15%. Petrochemicals, nitrogenous fertilizers, diesel engines and some branches of the automotive industries are also priority sectors.

Kenya

In a UNIDO country study on Kenya [1] a list of industrial projects proposed for the period 1979-1983 is provided. The list indicates that a wide range of projects, involving both private and public investment, are included though no information is given regarding the likely extent and form of possible foreign contributions. The major sectors, consistent with the priority industries identified by the government, are food, beverages and tobacco, textiles, clothing and leather, wood and wood products, paper and paper products, and then certain of the more basic industrial goods such as industrial chemicals, basic metal industries and fabricated metal products. The emphasis, therefore, is on the processing of locally available materials and on a gradual move towards production of industrial inputs.

Malaysia

The manufacturing sector is expected to increase its GDP share from 14.4% in 1975 to 16.8% in 1980 and 26.2% in 1990. Though greater emphasis will be given during the next decade to the manufacture of industrial machinery and transport equipment goods, the production of intermediates and consumer goods will still be the dominant feature of manufacturing in 1990. The industrial priorities are resource based industries, especially linked to timber and rubber, the food industries, and in general those industries which lend themselves to backward and forward integration with existing industries.

Mexico

The industrial development plan which covers the period 1979-1982 and subsequently the period 1982-1990, establishes 70 priority industries. These industries were established on the basis of a detailed evaluation scheme and designed to respond to a series of basic objectives. Those objectives include the production of essential consumer goods; the development of industries competitive in world markets; additional processing of natural resources; and the integration of the industrial structure via the development of capital goods production. Two categories of priority sectors have been identified. The first category comprises mainly industries producing foodstuffs or supplying machinery or equipment to those sectors considered to be strategic i.e. contributing strongly to employment and vertical integration of manufacturing. The second category includes remaining activities which generate basic consumer goods as well as industries producing widely used inputs. The anticipated growth rates for most of these sectors exceed 10% per annum for the period up to 1990.

---

[1] Redeployment of Industries from Developed to Developing Countries: Its Scope and Application to Kenya, ID/WG. 315/1, 29 November 1979.

Nigeria

The third national development plan covered the period 1975-1980. In that period the manufacturing and crafts sector was projected to grow at around 28% per annum and mining and quarrying at about 11% per annum. The priority sector included iron and steel, petrochemicals, agro-industries and building materials. There is substantial scope for expanding industrial capacity in the above sectors as well as in cement, fertilizers, pharmaceuticals, dairy products and plastics. Nigeria is seeking international co-operation for several of these projects, particularly in the fields of nitrogenous fertilizers, petrochemicals and liquified natural gas.

Pakistan

Under the fifth plan priority is being given to production of basic industrial and agricultural inputs with attention devoted also to the development of selected capital goods industries.

Republic of Korea

Industrial priorities during the present plan period (1977-1981) emphasize skilled labour intensive industries such as machinery and shipbuilding, and the establishment of capital-intensive industries, including iron and steel, non-ferrous metals and petrochemicals on scales large enough to ensure international competitiveness. For light industry the accent will be on product diversification and quality improvements. Promotional policies are designed to encourage and assist the introduction and local adaption of advanced foreign technologies as well as investment in research and development activities by private enterprises.

For the machinery industry, policy is to be oriented towards improvement of product quality and international competitiveness. Imports of advanced foreign technology are encouraged but the purchase of plants on a turn-key basis is discouraged; domestic equipment production should increase and the expansion will be met by local sources of finance. In electronics every effort will be made to promote the importation of advanced technology and to this end a research institute for technological development in electronics will be established within a new industrial estate aiming at the production of 57 strategic items including semi-conductors and computers. A product development fund of $60 million has been created to serve this purpose. Advanced foreign technology will also be imported to induce local development of new shipbuilding technology and design capability in that field, and major projects include the construction of two new shipyards with capacities of 1.2 million gross tons and 150,000 gross tons. In iron and steel top investment priorities are given to the expansion of the special steel sector. For non-ferrous metals investment plans include the construction of a large scale copper refinery with an annual production capacity of 50,000 tonnes. The latest smelting techniques will be imported in an effort to raise the level of technical sophistication in this industry. Plans in the petrochemical sector include a special industrial estate to be developed in the Yeocheon area where a naphtha cracking centre with an annual capacity of 350,000 tonnes on an ethylene basis and nine related plants will be built. The existing naphtha cracking centre in the Ulsan district will be increased from the present annual capacity of 100,000 tonnes to 150,000 tonnes and four related plants will be either constructed or expanded in capacity.

Turkey

In the fourth five year plan the share of industry in GDP is expected to rise from some 23% in 1977 to 27% in 1982. The priority sectors in the plan include electric power generation, fertilizers, iron and steel, electronics and telecommunications, machine tools as well as other industrial sectors which are export-oriented. The planned distribution of investment shows some 31% going to manufacturing and another 6% to mining, while within the manufacturing sector 3/4 of investments are devoted to expanding output of capital goods and intermediate goods. On an industry basis particularly large investments were planned in chemicals and petrochemicals, agricultural machinery, electrical equipment and wood and wood products. Foreign collaboration is welcome under a series of conditions, among others a strong preference for the abovementioned priority sectors. As far as possible the output should be oriented towards export markets and every effort should be made to reduce dependence on imported raw materials.

4. Some Sector Priorities and Prospects

4.1 Mineral processing industries

As a UNIDO study [1] on this sector shows, the developing countries have significant prospects and actual plans to process mineral resources that so far were largely exported in crude form. In tables 1 and 2 the opportunities for further processing of seven non-fuel minerals are presented. These minerals account for about three quarters of development countries' exports of all non-fuel minerals.

As can be seen from table 2, the processing of all seven minerals is expected to increase by relatively small proportions (save for nickel and zinc) of recoverable mine production in the next 3 - 4 years. Nevertheless, developing countries, as a group, have firm plans to process a larger proportion of their minerals in the short to medium term. In table 3 the investment requirements, employment data and likely exports connected with these plans are shown. Investments in the iron and steel industry amount to about three quarters of the total. Many countries have formulated long-term (five and ten years) programmes for the development of their steel industries.

It appears that the capacities of individual plants will be notably increased in the future. Thus it is expected that integrated steel works of 4 million tons per year to 10 million tons per year capacity may gain in importance. Moreover, at the same time relatively small scale steel works of less than 0.5 million tons per year (using direct reduction) are likely to play an increasing role. By 1982 steel production in developing countries may rise to more than 20% of world production, compared to 7% in 1977. This however presupposes that a direct reduction process based on solid fuel can be used.

---

[1] Mineral Processing in Developing Countries: UNIDO Study in Preparation.

Table 1

OPPORTUNITIES FOR FURTHER PROCESSING DEVELOPMENTS

Country	1977 Gap ('000 mtpy)		1983 Gap ('000 mtpy)	
Alumina	Country Gap	Aggregate Gap	Country Gap	Aggregate Gap
Guinea*	5865	—	7017	—
Jamaica*	4120	—	3820	—
Surinam	2175	—	2175	—
Guyana*	1425	—	1540	—
Indonesia*	650	—	73	—
Brazil*	565	—	1100	—
Dominican Republic	565	—	565	—
Malaysia	475	15840	475	16765
Aluminium				
Jamaica	3565	—	3565	—
Guinea	3285	—	5108	—
Surinam	1675	—	1675	—
Guyana	870	—	1087	—
Indonesia*	325	—	336	—
Dominican Republic	283	—	283	—
Malaysia*	240	—	240	—
India*	200	—	340	—
Brazil*	100	10543	600	13234
Copper Smelting				
Philippines*	317	—	304	—
Papua New Guinea	180	497	180	494
Copper Refining				
Zaire*	392	—	392	
Philippines*	314	—	301	—
Chile	314	—	430	—
Papua New Guinea	178	—	178	—
Peru*	71	—	49	—
Namibia	69	1338	69	1429
Steel Making				
Brazil*	70400	—	109000	—
India*	32400	—	35900	
Liberia	21600	—	28400	—
Venezuela*	19300	—	16700	—
Chile	9300	—	9300	—
Mauritania	8600	—	8600	—
Peru	6400	168000	6400	214300

Table 1 (Cont.)

Country	1977 Gap ('000 mtpy)		1983 Gap ('000 mtpy)	
	Country Gap	Aggregate Gap	Country Gap	Aggregate Gap
Lead Smelting/Refining				
Peru*	126	—	47	—
Iran	50	—	64	—
Morocco*	42	218	32	143
Nickel Processing				
New Caledonia*	64	—	65	—
Botswana	33	97	33	98
Tin Smelting				
Bolivia*	18	—	6	—
Zinc Smelting				
Peru*	366	—	183	—
Iran	104	—	126	—
Bolivia*	77	—	17	—
Mexico*	62	609	23	349

* Indicates firm plans for capacity expansion.

Note: In some cases, the remaining 1983 processing capacity gap is shown, despite the fact that it is smaller than the minimum economic plant size as indicated in table 2.

Source: Mineral Processing in Developing Countries: UNIDO Study in Preparation.

Table 2: Current and projected mineral processing capacity of all developing countries in per cent of recoverable mine production

	1977	1983
Alumina refining	32	42
Alumina smelting	14	19
Copper smelting	84	85
Copper refining	62	63
Steel making	23	29
Lead processing	95	100
Nickle processing	59	79
Tin smelting	92	94
Zinc processing	55	81

Source: Mineral Processing in Developing Countries: UNIDO Study in Preparation

---

Table 3: Developing countries with opportunities for further mineral processing

	Estimated investment requirements to close the current processing gap, billion US $	Estimated employment potential in closure of current processing gap, thousand jobs	Estimated potential export value in closure of current processing gap, million US $
Bauxite/alumina/aluminum	38.8	137	12600
Copper	1.7	6	560
Iron ore/iron/steel	137.8	840	40300
Lead	0.2	1	50
Nickel	1.0	1	290
Tin	0.1	1	30
Zinc	1.0	3	250
Sum total for 7 minerals	180.6	989	54080

Source: Mineral Processing in Developing Countries: UNIDO Study in Preparation

4.2 Agro-Industries

Little information could so far be obtained on planned projects in this sector. It seems that a total of 91 investment projects are planned by transnational corporations over the next ten years in 29 developing countries. The presence of a local or regional long-term market, the availability of raw materials, and a stable political climate, in that order of importance seem to be the major incentives for these investments.

4.3 Petrochemicals

According to a recent OECD study [1] roughly 100 steam cracking projects were under discussion or construction at the beginning of 1979 in 55 developing countries, though industry sources suggest that perhaps only half of the projects will have materialized by 1990.

While in a petrochemical complex the basic engineering for the downstream units is frequently handled by the foreign plant supplier (who usually brings the whole package of process, product and know-how), chemical engineering contractors play a crucial role in the upstream units. In 1979 more than 70% of the turnover of chemical engineering contractors was with developing countries. An end April 1978 listing of several of these firms showed that their current workload at that time was at least $15 billion, but it may be reasonable to suppose that the actual figure was as high as $25 to $30 billion. Applying the 70% developing countries' share mentioned above, a very rough estimate of the value of developing countries' demands to chemical engineering contractors alone would be of the order of $20 billion.

4.4 Estimates of resource requirements

Estimates of the foreign resource requirements for developing countries' expansion in various sectors are few and far between. Given that changes of technology, scale, utilization rates, and other technical variables, not to mention the bargaining over specific project arrangements in individual countries affect the estimates, it is clear that even those figures which are available can represent only extremely broad orders of magnitude. A few estimates will nonetheless be presented to indicate the possible order of magnitude.

---

[1] See OECD, Transfer of Technology in the World Petrochemical Industry, September 1979.

If the plans and prospects of enlarging the mineral processing industry capacity in developing countries as indicated above are to be realized, substantial investment will be required. The aggregate investment requirements for the seven minerals are around $180 billion which compares with a projection of some $60-70 billion for all developing countries for all their investments in mining and mineral processing during the period 1977-1990. The $180 billion figure is rather more than three quarters of the total annual investment in all developing countries for all purposes at the present time.

The UNIDO study of the leather and leather products industry [1] provides certain estimates of capital requirements for increasing developing countries' capacity in this sector. As the majority of developing countries would have to import the equipment, it is estimated that foreign currency requirements could reach as much as 52% of the total capital requirements for a standard tannery (which, in 1977, cost more than $15 million). Moreover, the running costs in foreign currency terms could also be half or more of value added due to the high cost of imported chemical inputs and the servicing of capital. Total foreign currency requirements simply for planned expansion from 1975 to the year 2000 would, according to the scenarios adopted, reach between $3.7 to $4.7 billion.

A capacity expansion of agro-industries from 1973 to 1985 might cost some $60 billion [2] if the aim were to establish the base for reaching the Lima target by the end of the century.

In the fertilizer industry fixed capital requirements for conventional methods of production are extremely high and vary from $0.3 to $0.5 million per man employed for a large nitrogen fertilizer plant. The nitrogen and phosphate investment costs alone amount to $83 billion and it is expected that the foreign exchange component might reach about 60% of the total. Estimates for the five year period ending 1980 show that the ratio of foreign to domestic expenses for new fertilizer plants in that period was of the order of 60:40. A number of investment institutions require that the equity to loan ratio for fertilizer plants should be in the range of 1:1 to 1:2. Case studies on ten plants recently constructed in developing countries show that the government or a public sector enterprise has been the major actor in domestic financing and has spread its involvement between equity and loans. This evidence suggests that, applying the above proportions to the total $83 billion of investment requirements, the $50 million of foreign exchange would be mostly loans and supplier credits. [1/]

---

[1] Summary of the Draft World-Wide Study of the Leather and Leather Products Industry: 1975-2000, UNIDO/ICIS.43, 12 September 1977.

[2] Draft World-Wide Study on Agro-Industries: 1975-2000, UNIDO/ICIS. 65, 12 December 1977.

If the Lima target is to be achieved, the investments in new steel works in developing countries over the next two decades could reach $475 billion. On the basis of various calculations regarding sources of finance it is suggested that the foreign exchange portion of the total could be of the order of 70%, or more than $330 billion with the lion's share coming through export credits. There is no doubt, as is confirmed by UNIDO's own study [2/] of this sector, that the major public international and private transnational financial organs will exercise an ever increasing role in the organization of new capacity. In practice the supply of engineering services, capital goods and know-how is frequently linked with the provision of finance. This implies that the problem of decomposing supply sources for complex investment projects is severe.

In the petrochemical industry estimates of investment requirements for the period 1980-1985 suggest total expenditures by developing countries of the order of $42 billion. No breakdown of these figures as to

---

[1/] Second World Wide Study on the Fertilizer Industry: 1975-2000 UNIDO/ICIS.81, 11 September 1978.

[2/] L'Industrie Siderurgique Mondiale (Seconde Etude). UNIDO-ICIS.89, 20 November 1978.

foreign and domestic components could be made, among other reasons because what is supplied domestically varies so much according to the level of technology already attained in the country as well as the supply of finance. The OECD study mentioned earlier shows some of this variation. Thus Saudi Arabia has a capital structure for its projects under discussion with 50% local participation but currently has to rely entirely on foreign engineering and equipment sources. Mexico has made major advances in this sector and so not only limits foreign participation to 40% in recent projects but also provides part of the detailed engineering as well as 60% of the equipment. Somewhat similar patterns are observable as far as engineering and equipment are concerned for both Brazil and the Republic of Korea. Singapore may obtain some 50% of equipment from local sources but will import all of its engineering requirements.

The figures mentioned give a very rough idea of the orders of magnitude involved in forecast or planned industrial expansion in developing countries and some sectors of them for the coming period. Undoubtedly there is need for far more precise data at industry and country levels with which to prepare a better panorama of the implications of the pursuit of the Lima target.

Yet some observations can be made at this stage. Firstly, in all of the basic industrial sectors considered i.e. mineral processing, agro-industries, fertilizers, petrochemicals, numerous developing countries are planning major expansions of capacity and large numbers of projects are currently under construction or have been proposed. Even allowing that a sizeable number of projects may never come into operation, there is no doubt that productive capabilities in these sectors will rise rapidly in the coming years. Secondly, some of the larger and more industrialized developing countries are planning to reach self-sufficiency levels of production of certain key industrial products within the foreseeable future. Thirdly, in several instances supplies from these countries will be sold also on world markets; this is particularly true for the petroleum producers and those relatively industrialized developing countries which have small domestic markets, but also applies in various sectors to some of the major developing industrial countries e.g. Argentina, Brazil, India, Mexico and the Republic of Korea. Since only a relatively small proportion of these exportable supplies are covered by buy-back agreements or can be otherwise marketed through the captive channels associated with direct foreign investment, there will be a growing need for market access in the coming decade. Hence, besides the problems connected with exports of relatively labour-intensive items, a new class of market access problems is on the horizon.

Fourthly, the available evidence suggests strongly that foreign collaboration in these sectors will take the form principally of the provision of technology through equipment supplies and plant and process know-how, the supply of loan capital through export credits and other routes, and only to a much more limited extent through direct foreign investment. Certainly this oonclusion is biased by the industries discussed - yet they are major industries whose contribution to the gross industrial output of developing countries in future years is likely to rise relatively rather than to fall. While patterns of direct equity control, captive market channels and the more traditional issues connected with the transnationalization process will continue to be acute in several other sectors, the problems in the areas considered here are changing. Fifthly, public sector involvement is expected to be of major consequence. This is in part due to the state's financial commitment (especially in equity), and in part to the organizational and technological procurement policies which public sector corporations may follow. The degree to which technological skills can be internalized and the degree of vertical and horizontal industrial integration of the economies will be determined significantly by public sector policies in this area.

5 Industrial Restructuring among Developing Countries

This section focuses on recent patterns of industrial redeployment among developing countries in particular in the form of direct foreign investment and exports of technology. No attempt is made to discuss the very important resource flows through portfolio investment, grants and loans which have been made by the petroleum producing countries. Several of these operations have led to new initiatives in developing countries not only for the production of industrial goods but also for the provision of industrial services; a more complete picture would be obtained if these programmes were taken into account. However, the purpose here is to examine the new flows in the international system which stem from the industrial capacity and skills already available in developing countries.

5.1 Direct foreign investment among developing countries

5.1.1 The statistical picture

It is scarcely surprising that no systematic evidence is available on direct foreign investment on a global basis among developing countries. Tables 4 and 5, however, give figures on the intra-regional direct investment stock in Latin America and Asia. The statistics do not reveal several important things such as: the sectoral distribution; the distribution of foreign equity e.g. majority and minority shareholders; whether or not the investments genuinely come from developing countries' owned firms or are made by transnational corporations' affiliates; the degree to which public sector corporations may be involved; and the rates of growth of the investments. All of these are subjects requiring further research. Moreover, the figures shown may underestimate total flows due to inadequacies in reporting systems, failure to take account of relatively old direct foreign investments, and the impact of exchange controls on the ways in which firms seek to disguise the true extent of their foreign investments.

Table 4: Intra-regional direct investment stock, Latin America, by host country and by country of origin, 1971 and latest available year

(Millions of US $)

Countries of origin	Host countries										
	Argentina	Brazil		Chile	Colombia		Ecuador		Mexico	Venezuela	
	1974	1971	1976	1974	1971	1975	1971	1970	1974	1970	1974
Argentina	—	7.5	13.3	0.1	0.1	0.9	—	4.5	5.3	—	11.2
Brazil	9.1	—	—	5.2	0.4	2.0	—	4.4	7.2	—	1.6
Chile	—	—	—	—	0.1	0.1	—	—	—	—	0.7
Colombia	0.9	—	—	—	—	—	2.7	7.9	—	—	1.2
Mexico	1.0	2.6	6.9	5.3	1.4	7.5	—	4.0	—	—	4.7
Peru	0.9	—	—	0.8	0.3	0.8	—	1.4	3.6	—	—
Uruguay	2.2	8.3	12.0	—	4.6	4.7	—	—	—	—	2.1
Venezuela	0.1	4.2	9.0	1.7	10.5	19.3	3.4	10.3	1.8	—	—
Latin America Free Trade Area	—	—	1.0	—	0.3	0.3	—	—	3.5	—	—
Sub-total	14.2	22.6	42.2	13.1	17.7	35.6	8.1	32.5	21.4	6.7	21.5
Panama	80.6	80.1	275.0	—	36.4	53.7	—	4.0	119.3	—	—
Bermuda	—	12.2	39.0	—	0.7	1.0	—	—	—	—	—
Netherlands Antilles	—	75.2	192.0	—	13.4	20.2	—	—	—	—	—
Bahamas	—	21.7	66.0	—	13.7	10.0	—	—	—	—	—
Other	—	—	39.0	—	1.2	3.9	—	—	—	—	—
Total	—	211.8	653.2	—	83.1	124.4	—	36.5	—	—	—

Source: CTC, op.cit. p. 246

Table 5: Intra-regional direct investment stock, Asia by host and origin, 1976

(Millions of US $)

	Host country or territory			
Origin	Thailand	Indonesia	Philippines	Hong Kong
Malaysia	5.0	42.7	—	—
Hong Kong	10.9	728.3	14.2	—
India	2.4	19.4	—	—
Philippines	0.9	272.1	—	3.4
Singapore	2.2	115.6	—	13.4
Korea, Republic of	—	107.4	—	—
Thailand	—	—	—	29.7
Other Asian developing countries	22.1	102.9	3.1	7.3
Japan	74.5	1216.6	124.2	56.8

Source: CTC, *op.cit.*

The figures indicate that at present probably only a small number of the more industrialized developing countries are investing abroad and that proximity, sociocultural as well as geographical, may be a factor in investment decisions. For Asia intraregional direct foreign investment is much higher than for Latin America. Investments from Hong Kong are greater than those from the other developing countries and by far the largest recipient is Indonesia where the 1976 stock from six other countries in the ESCAP region amounted to almost $1.3 billion,i.e. of the same order of magnitude as the direct foreign investment to Indonesia from Japan. In Asia there is a fairly clear-cut separation between countries supplying and countries receiving, but in Latin America some of the larger countries may be involved in two-way traffic.

In a UNIDO study on India [1/] some evidence is given of redeployment to other developing countries. Bilateral industrial ventures have, for instance, been promoted by India in Bhutan, Nepal, Afghanistan, Indonesia, Tanzania, Thailand and Mauritius and other countries. Recent experience in India has shown that the performance of Indian joint ventures is encouraging in terms of meeting the objectives of the policy for joint ventures i.e. (i) to extend development co-operation to the developing countries and (ii) to create opportunities for exports of India's capital goods, technology and know-how. In particular, India has been attempting to promote regional technical co-operation as well as co-operation with countries from the Afro-Asian and Latin American groups. Multilateral technical collaboration includes design manufacture and supply and installation of machinery and equipment for turn-key engineering projects; supply of complete plant and equipment for industries like cotton and woollen textiles, cement and sugar mills; structural fabrication; power transmission lines; blast furnaces, etc.

By the end of 1977 the number of approved projects was 322 of which 135 were operating and 82 were in various stages of implementation.

1/ Redeployment of Industries from Developed to Developing Countries, ID/WG.315/8, 29 November 1979.

At that time the value of Indian equity was estimated at some Rs. 500 million (about $80 million) which were thought to be yielding earnings through dividends, technology fees, managerial fees and royalties of roughly Rs. 158 million (about $25 million). More than 60% of the machinery exported to launch the joint ventures concerns industries like textiles, sugar, cement, chemicals and paper machinery. More sophisticated items like electric motors, transformers, switchgear equipment and related engineering products account for about 25% of the exports for setting up joint ventures.

Figures for the cumulative stock of direct foreign investment by the Republic of Korea as of end 1977 show that approximately 2/3 was in Asia, 19% in North America, some 10% in Africa and about 4% elsewhere. One fifth of the investment was in manufacturing with the average size of projects there about double that of the rest of the sample. The growth rate of the stock between 1976 and 1977 was 25% and plans suggest that growth rates now may be even higher. It seems that developing countries in the Middle East, Africa and Central and Latin America will receive an increasing share of Korean capital. In most cases, Koreans provide manufacturing technology, part or all of the capital requirements, and increasingly more semi-processed products. It can be assumed that Korean investments aim at penetrating new markets or overcoming protectionist barriers in existing markets as well as procuring stable supplies of raw materials. Both kinds of investment are backed by the government. Korean companies are establishing manufacturing operations both in countries that may erect barriers to their exports, and in those judged good export bases for penetration of protectionist markets. This means international companies can expect to face rising competition from Korean products manufactured everywhere - not simply Korean exports.

Studies of the Latin American experience show that joint ventures are of great importance and that more than 80% of these are bilateral operations. No fewer than 21 of the 25 countries of Latin America have been recipients of intraregional direct foreign investment and a study of 200 joint ventures shows that they follow a strong 'zoning' pattern, i.e. 80% of the regional investors in the north of Latin America also come from the north, while in the south the corresponding intra-zone proportion was 89%. Of 177 instances where the sector of operations of joint ventures was identified, three quarters of these were in manufacturing. Considering the relationship between private and public sector direct foreign investment, about 69% of the joint ventures were purely private sector operations and almost certainly the vast majority of the joint ventures in manufacturing are among private corporations. Public sector direct foreign investment in the Latin American context tends to be in large scale projects in the infrastructure and basic industry sectors.

Intergovernmental agreements of both a bilateral and multilateral nature within the region have facilitated much of the direct foreign investment within the region (as, for instance, in the Rio Plata Basin treaty signed ten years ago, which has provided for substantial co-operation between Argentina and Paraguay, including the establishment in June 1974 of a permanent office for investment and industrial complementarity). Some of Brazil's investments in developing countries outside of Latin America have also been supported by such a framework.

5.1.2 The implications of direct foreign investment among developing countries

The role of this kind of investment can be considered under four headings viz. the stimuli to it, its advantages and disadvantages, obstacles and implications. In examining these points it should be borne in mind that most of the investment is not of the transnational corporation type. This at once implies that several of the problems arising from the package nature of transnational corporations' investment are unlikely to occur with intra-developing countries' flows, at least in the immediate future. Yet this does not necessarily mean that the latter type of investment will be preferable to the former; both have to be analyzed in their context.

The stimuli for investing firms seem to be as follows. First, inadequate domestic effective demand which pushes firms abroad. Second, the influence of industrialized countries' commercial policy on the location of production among developing countries. When country specific quotas and other non-tariff obstacles are important determinants of the volume and origin of trade, it is hardly surprising that firms try to circumvent these obstacles by switching the location of their production. Hong Kong firms in the textile sector, for example, have engaged in this movement for some time, shifting production to Sri Lanka, Thailand and various other locations. Third, the search for cheaper labour is by no means confined to the behaviour of industrialized countries alone and the cheapness of labour varies within developing countries. It appears that especially in Asia there is some relocation of production in response to this stimulus: the more industrially advanced Asian countries are beginning to loose their comparative advantages in labour intensive branches such as textiles and clothing through rapidly increasing real wages. Fourth, diversification of risk is likewise a stimulus to moving abroad particularly where a major component of risk is the import/export and foreign exchange policy of the home country government.

One study of Thailand 1/ compared the motivations of developing countries' firms and of transnational corporations for investing in that country. Observation of the results suggests that the two groups of firms were responding to quite different stimuli. For the transnational corporations a handful of motives (threats to existing markets, high technology production, and marketing expertise) were overwhelmingly important. For developing countries' firms, however, risk diversification came on top of the list and this was closely followed by other factors such as small home market, high local return, threats to existing markets, experience with labour intensive technology, and the presence of family or home country business associates in Thailand.

The extent to which intra-developing countries' investments are advantageous of course depends on who is being considered and what the alternatives are. The evidence so far available suggests that some tentative generalisations relevant to the issue of who reaps advantages can be

---

1/ D. Lecran, Direct Foreign Investment by Firms from Less Developed Countries, Oxford Economic Papers, October 1977.

made with respect to production techniques and utilization of inputs as far as the recipient country is concerned, and with regard to financial flows across national boundaries.

With regard to the important question of the appropriateness of technology, it appears that type of equipment, scale of production and use of local labour are closely related. Hong Kong firms' operations abroad have made considerable use of second hand machinery regarded as no longer suitable for conditions in Hong Kong due to wage rises there and the lowering of labour productivity measured in cash terms. Since international markets for second hand machinery are poorly developed, one way of utilizing the equipment (instead of scrapping it) and simultaneously employing labour in other developing countries where wages are much lower than in Hong Kong is to invest abroad with that equipment. More generally, data on capital/labour ratios in Indonesia and Thailand show that in the former case the ratios for developing countries' investors were about half of those for industrialized countries' investors in comparable industries, while in the latter case the ratios for developing countries'iinvestors were about 40% lower than for either transnational corporations or local firms. In addition, figures for Thailand also show that capacity utilization by developing countries' investors is much superior to that by other groups of entrepreneurs and that the import content of raw materials used is much lower for developing countries' investors than either for local firms or transnational corporations.

Evidence suggests a presumption that, from the angle of production processes, developing countries' investors may provide more appropriate technology than industrialized countries' investors (or even local entrepreneurs in the same industries).

The financial impacts of intra-developing country direct foreign investment appear, from the limited evidence available, to be relatively favourable. For Thailand it was found that the recorded rates of profit repatriation for developing countries' investment firms were only about 1/7 of the rates for transnational corporations; that royalty fees as a percentage of sales were 15 times higher for transnational corporations than for developing countries' enterprises; that, as noted in the preceding paragraph, developing countries' investor firms had a much lower propensity to import raw materials; and that the developing countries' investors imported less than half of the equipment they used from OECD sources while 90% of equipment imports by the industrialized countries were from the OECD region. Since, with reference to this final point, equipment from the OECD is almost certainly much more expensive than equipment from other places, it is more than probable that developing countries' investors spend less in foreign exchange for machinery than do other enterprises.

There are significant obstacles to intra-developing country investments, of which by far the most powerful one is the prevailing structure of the world system itself. The pattern of communications, interpreted in their broadest sense, gives a massive advantage to industrialized countries' investors. One of the areas where agencies of the United Nations system and especially UNIDO must concentrate their endeavours is precisely towards equilibrating the flows of information available to developing countries' enterprises.

Three kinds of entry barriers exist in addition to the major structural deterrent just mentioned: these are legal, economic, and cultural in nature. Legal barriers work both in supplier and recipient countries. In the former there are, for well known and generally well justified reasons, impediments to the export of capital, above all in cash form. In recipient countries the problems are intimately connected with the structure of transnational corporation controlled direct foreign investment. Countries have had to create complex legal forms in order to balance the impacts of such investment; in so doing, they have created barriers to intra-developing country investments.

Economic obstacles are intimately concerned with inadequacies of information and with the needs of recipient developing countries. Given that the large majority of investments are of the joint venture type, the basic problem is always to find suitable partners. In that respect the costs of information search can be substantial compared to the expected size of projects. With regard to the types of investments sought by developing countries, it may be that wherever the accent is placed on high technology or obtaining access to industrialized countries' markets as a consequence of the investment deal, developing countries' investors will be at some disadvantage. More adequate assessment of this possibility must await further evidence. Trade barriers may also complicate investment decisions.

The cultural barrier to entry is part of the problem of gaining acceptability for developing countries' products in other developing countries. Sometimes a developing country's investor may link with an industrialized country's firm simply to obtain such a 'seal' of approval.

5.2 Intra-developing country technology exports

The forms these exports can take are of course the same as with industrialized countries i.e. turnkey plants, patent licences, agreements, management contracts and so on. The supplier countries are much the same as with direct foreign investment and here too there are some fairly marked features of regionalization in the directions of flows.

Argentinian data for the 1973-1977 1/ period show that the total value of these sales amounted to close to one tenth the total value of manufactured exports from the country over the period. Almost all the exports were intraregional and they cover a wide range of industrial technologies - Argentina is in a position to provide some of the more complex technological needs of its neighbours. Korean data 2/ likewise suggest that the range of technological goods which can be provided is fairly substantial. The command which Korean companies have in the construction industry has undoubtedly helped to provide a basis for some of the turnkey sales and there does appear to be quite integrated

---

1/ Katz, J. and E. Albin, De la Industria Incipiente e la Exportación de Technologiá: la Experiencia Argentiña en la Venta Internacional de Plantas Industriales y Obras de Ingéniera, Monograph No. 14 of the IDB/ECLA Programme of Research on Science and Technology, Buenos Aires, April 1978.

2/ Rhee, Y.W. and L.E. Westphal, A Note on Exports of Technology from the Republica of China and Korea, mimeo, November 1978.

command of plant design, construction and maintenance. The two countries differ in the extent to which foreign firms are associated with these turnkey sales. In the Argentinian case, few contracts went to transnational corporations' affiliates; yet in value terms these contracts accounted for more than half of total export receipts. In the Korean case, however, the exporting enterprises are frequently the conglomerates which occupy such a powerful position in that economy. There are also, and very importantly, differences between the two countries with regard to government support. In the Argentinian context rather little has been forthcoming while in the Korean situation the coherence of government and large private corporation policies ensures support.

Though in a turnkey operation the buyer is dealing with a single seller of the whole technology package, the seller may not be able, and usually is not able, to operate alone. Complementary agents are necessary in the shape of consulting engineering firms, international trading companies, and financing and insurance groups. The first of these effectively functions as an intermediate agent on the technical side; through knowledge of capital equipment supplies as well as engineering processes, their role may be indispensable for smaller firms winning the turnkey contracts. Trading companies play a similar function with regard to marketing, transportation and legal arrangements and there is little doubt that their services are vital in the effective initiation and operation of turnkey deals among smaller companies. The sales themselves cannot take place unless there is adequate risk coverage including the supply of credit. Here the role of financing and insurance groups is critical to serve the buyer as well as the seller. In Korea the integrated nature of the production/distribution conglomerates plus the continued and strong support from the state ensure that these problems are handled fairly smoothly. In Argentina, however, neither of these conditions is present and it is thus likely that the extent of turnkey sales is less than would be predicted on the grounds of technical command alone.

In India there has been a substantial expansion in recent years in exports of engineering goods and capital equipment, in part linked to the expansion of turnkey sales but also tied both to direct foreign investment and the international projection of Indian consulting engineering enterprises. This has been arranged through (i) co-operation with international contracting organizations either by making joint bids or through seeking subcontracts from these organizations; (ii) association with other Indian public and private groups to make joint bids abroad; (iii) the nomination of experts through technical service agreements; and (iv) the search for assignments as a consultant to foreign project execution authorities. Arrangements also exist with international contracting companies for the purpose of obtaining subcontracts from them and with certain foreign companies for joint exploration of redeployment opportunities in third countries.

There seems little doubt that in the Indian case much of the development is an outgrowth of the policies of technological protection which have been pursued (with all their ups and downs) over the last quarter century. Public sector support has been vital in the learning process and has accompanied the growth of private skills. Without some assistance of this type probably no country will be able to become an effective user, producer and exporter of technology. Compared to those few developing countries currently exporting, newcomers in this group have the advantage that the sources on which they can draw have grown. This, of course, does not guarantee an easier path though it does provide a wider range of alternatives.

Industrial redeployment among developing countries is thus taking place, apparently has several advantages as compared with traditional channels of redeployment, and could well be the bridgehead for effective co-operation among the developing countries. It is essential that future work on redeployment issues pay far more attention to the possibilities and problems arising from this type of redeployment. The future work should bear in mind the changes which may exist for combining some elements of redeployment from developed countries with other elements of industrial co-operation between the developing countries.

6. Strategies of Major Actors

6.1 Actors, objectives and actions

The major actors in the redeployment process are: (i) transnational corporations engaged in production; (ii) transnational corporations in the financial sphere; (iii) smaller industrial firms in some sectors which do engage in international production and/or are providers of important industrial services, above all of a technological or legal kind; (iv) industrialized countries' governments; (v) developing countries' governments. The strategic interplay among these groups is notable for an oft changing mix of affinities and antagonisms, co-operation and conflict. On the gameboard the most important issue is not always, or perhaps even mostly, that of 'winning' or 'losing', but rather of retaining the capacity to make relatively independent choices, even if those choices fall short of the ideal. Indeed, for developing countries as a whole a key feature of industrialization is precisely its contribution towards occupying a less subordinate place in the international environment. Forms of redeployment which create more manoeuvring space in the medium to long term will be supported and those oonstraining the future range of choices for developing countries will be less welcome.

The groups of actors mentioned are not homogeneous. Competition among developing countries' governments interested in promoting labour-intensive, export-oriented activities is already apparent. There is also a need to differentiate within groups regarding the main sectors in which specific actors operate. The strategies employed can vary widely depending on the production characteristics of the industry, and these in turn affect the forms which industrial redeployment can take. Finally, it should be stressed that those groups not mentioned may be important too. In particular, labour or labour organizations (including professional associations) either in developing countries or in industrialized countries may have an increasing influence on redeployment in the future.

Transnational corporations' manufacturing enterprises in the first place seek global profit maximisation with minimisation of risks. For them developing countries have hitherto been providers of raw materials, export platforms, and fast growing markets in which, through direct foreign investment, sales could be boosted. Very little of the crucial 'overhead' activities of the transnational corporations, especially with regard to product and process design and innovation, are undertaken in developing countries - these key sources of corporate power have never been redeployed. The relative significance of each motive depends on the sector, as noted above. For a given developing country, the different kinds of redeployment may all be occurring simultaneously in distinct sectors which implies that, with diverse transnational corporations' motives, the developing country itself may have to develop sectoral strategies that vary from one to the other. Developing countries, in dealing with such transnational corporations, must strive to extract not only satisfactory financial conditions but, more importantly, obtain access to technological assets.

Much less attention has been paid in the past to the objectives of transnational financial entities and the impacts of their strategies on the redeployment process. The financial transnationals are becoming more important, in part because developing countries are looking for non-equity sources of capital. These enterprises too strive for global profit maximisation and risk minimisation but they are not in the business of making technological innovations. The strength of such enterprises lies precisely in their capacity to put together the huge sums needed to finance investment projects for which it is still difficult to generate sufficient cash resources in practically all developing countries save the capital surplus petroleum exporters. Yet the twin aims of profit maximisation and risk minimisation often compel the financial transnational corporations to take a deep and active interest in the technological organisation and management of the enterprises for which they provide loans. Thus, the industrialized countries' manufacturers and equipment suppliers can work in close collaboration with the suppliers of funds to put together large scale redeployment operations. This brand of project packaging differs from the direct foreign investment of the 1960's and first half of the 1970's where the predominant packages were internal to the manufacturing firm. The latter packages will continue to be significant in the redeployment process, especially in relatively low technology sectors, in sectors where entry by developing countries' controlled enterprises is difficult, and for the ongoing activities in investments established some time ago. They will also be important in those developing countries which are less geared to the expansion of basic industrial goods and/or have a weaker bargaining position. In all these cases the transnational finance groups will play a lesser role.

Smaller industrialized countries' enterprises are not in a position to commit substantial finance capital and have not built a large global network of affiliates. Their objectives - though in principle generally not different from those of the transnational corporations - therefore tend to be more limited in scope.

Industrialized countries' governments have obvious interests in the redeployment process to developing countries. The restructuring of their own economies is perceived to be intimately related to the industrial expansion of developing countries in the sectors where the latter are conventionally regarded as having comparative advantage. Since restructuring has political, social and electoral costs in addition to the financial ones, industrialized countries' governments see themselves as being compelled to minimize those costs through controls over trade, thereby affecting sales opportunities for developing countries suppliers and ultimately holding back (or redirecting) investment in developing countries. These policies operate not only through national decisions but also through the structure, content and machinery for implementation of multilateral accords. On the export side the support offered to investors (via guarantee and insurance schemes) to firms tendering for international contracts (via guarantees of their capacity to provide supplier credits) and to exporters more generally (via national commercial offices, trade fairs and the rest) is eloquent testimony to the importance attached to expanding influence in foreign markets. Most measures offer relatively larger subsidy elements for business in developing countries. 1/

A glance at the sources of sales and profits of the transnational corporations shows that a high and growing share of revenues comes from foreign operations of all types; given forecasts of future income and industrial output increases in the OECD and elsewhere, there is little doubt that the contribution of developing countries to these foreign generated returns will continue to manifest a relative rise. The very logic of corporate expansion provides the impulse towards transnationality.

In their industrial development plans developing countries' governments have committed themselves to industrial growth as a spearhead of economic advance. A wider and deeper industrial base is to be created, ideally capable of simultaneously providing mass consumption goods, to fulfill basic needs, and basic industrial goods, equipping the countries with the muscle needed to struggle on more equal terms in the industrial arena. What the governments seek above all from foreign resource suppliers is that they participate in amounts and on conditions compatible with domestic development objectives. There should, ideally, be a symbiosis between external assets and internal advance.

One of the ways in which developing countries' governments seek to promote industrialization is through the creation of public sector corporations both for producing and trading purposes. In theory these enterprises should behave in the way the government desires, being compatible both with its policies and with the policies of each other. In practice this is not always so, and there are well documented instances of different public sector companies operating at cross purposes. One reason for this phenomenon is that they are often exhorted to strive for domestic self-sufficiency in final output, and

---

1/ In certain sectors and to certain countries, however, redeployment is expressly restricted. This happens in all sectors which are considered strategically sensitive and to countries regarded as 'unfriendly'.

to achieve this quickly they may be enticed to import the most advanced foreign technology. Here they can easily conflict with other domestic firms which are mandated to encourage local technologies.

6.2 Objectives of actors and the restructuring process

The effectiveness of co-operation in industrial redeployment depends vitally on the range and size of the assets at the disposal of the various parties, a certain coincidence of information and interest urging them to utilize the possibilities for positive sum games, and the staying power of the participants, i.e. their determination and ability to remain in the game. The larger entities - the transnational corporations, transnational finance enterprises, many developing countries' public sector corporations and several developing countries' private sector firms - thus have, in a deeper sense, a shared future. While these entities may bargain over many things, they may need each other as well as their respective governments, to ensure that the opportunities are set up in the first place. They may, among others, try to limit support to smaller and medium sized firms, as support is tantamount to weakening the barriers to entry. This implies that developing and industrialized countries might have to pursue such policies against substantial opposition.

The degree to which the smaller providers of industrial services will in fact be able to remain independent is one of the more significant aspects of future strategy changes. If transnational corporations (in manufacturing and finance) continue the path of internalising control over key industrial assets, the probability is that they will initiate more drastic restructuring of their home economies, to absorb suppliers of industrial services, and become more predatory with respect to potential suppliers in foreign markets. All developing countries can do about this sort of vertical integration is to try to limit it within their own economies.

Once again, the issue is one of countervailing power or, more precisely, of generating the critical mass of concentrated industrial power with which to carve out an independent path.

The impacts of the interplay of strategies on developing countries centre on the conditions under which additional industrial capacity is created, the possibility for using that capacity i.e. the extent of demand and access to markets, and the economic and social returns stemming from expansion.

On the basis of the foregoing, the following trends may be important future developments. First, some transition may take place, much more pronounced in the large and more industrialized developing countries, towards the import of asset packages with a much smaller equity element in finance and a still greater emphasis on technology. Second, rapid capacity growth will place substantial demands on foreign loan capital. Third, in the next decade the focus will switch to loosening the ties which limit the freedom of industrial borrowers to choose their own plant contractors, equipment suppliers and management consultants. Fourth, it will be increasingly attempted to build market access into foreign resource contracts to take care of possibly chronic problems of underutilization of capacity during substantial periods. The pattern of globalization of products will, in any case, link resource supply to sales for the products in foreign markets. This, indeed, is one of the ways in which developing countries will try to make their own bilateral channels as a response to the growing fragmentation and canalisation of international trade. Fifth, the composition of developing oountries' output will try to meet the dual aims of expanding supplies of basic consumer goods and building up internal capacities for basic industrial goods. The thorny issues of appropriate production systems and appropriate products will thus grow in significance. Sixth, there seems little doubt that the provision of employment opportunities will remain a severe task in the light of the other trends. The scale of modern industry is such that unless the labour force can be given the chance to acquire greater skills, the capital intensity of output even with huge rises in capacity will preclude the reduction of unemployment. Seventh, market structures can be expected to manifest greater degrees of concentration partly due to technical conditions and partly due to the need to compete in what is essentially an international setting. In these circumstances, developing countries' government strategy must ensure that the distribution of benefits from the new activities is not in the direction of greater accumulation by a few but rather of greater availability to the many.

7. Issues for Consideration by Developing Countries

The focus of developing countries towards the issue of industrial redeployment was expressed at the Fifth Meeting of the Heads of State or Government of the Non-Aligned Countries, held in La Habana in September 1979: "The Heads of State or Government emphasized the role of redeployment of industries as a form of international industrial co-operation including resource transfers aimed at establishing productive capacities in developing countries with a view to increasing their share in the total world industrial production based on their natural resources, development objectives and other socio-economic considerations. They further stressed that redeployment should not be used solely as a pretext for either obtaining access to the abundant and cheap labour in developing countries, or for the transfer of obsolete and polluting industries. Redeployment should be carried out in accordance with overall national objectives, priorities and aspirations of developing countries and should not be associated with the expansion of transnational corporations in developing countries. It should be seen as part of a process designed to promote the transfer of technology to developing countries. The consultation mechanism at present underway in UNIDO should be strengthened and all countries must participate in order to achieve the redeployment of industrial capacities on a dynamic basis to developing countries and the creation of new industrial capacities in these countries."[1/]

If the industrialization aims of the developing countries are to be satisfied in line with the conditions indicated above, it is imperative for the developing countries themselves to develop adequate policies towards industrial restructuring. It would appear at present that the critical problems for developing countries involve access to markets, to technology, to finance capital and, in several cases, to ways of building up management skills. Any one project

---

[1/] See para. 59 of Documents NAC/CONF. 6/C 2/DOC. 1/Rev. 3.

may involve only some of these elements and for certain developing countries one element may be more important than others. In a majority of cases, however, these will be the key items around which redeployment negotiations will revolve.

Wherever industrial assets may be obtained from abroad, developing countries will have to seek the most suitable sources of supply and seek also to integrate those assets into their domestic industrial structure. There can be little doubt that for the more advanced and capital intensive industries, the transnational corporations will be the major source of foreign assets. Sometimes those assets will be provided through foreign investment, either in joint venture form or through the establishment of transnational corporate affiliates, but on other occasions it may be possible to obtain the technological assets and loan capital without the direct investment process. In every instance however, the most important consideration is for developing countries to define their needs with precision, seek to understand what can or cannot be obtained through careful negotiation, and then to ensure that the arrangements are properly implemented. In this respect the clarity and consistency of developing country policies is both vital to them and of great importance to foreign suppliers of industrial resources.

Throughout the restructuring process it should be remembered that bargaining skills, alternatives, information, and even to some extent the conjuncture itself, are not irrevocably 'given' to a developing country. There are many by now well known ways through which a country can increase the scope of obtaining more satisfactory redeployment projects. These ways have their costs, yet this is an area where the potential returns to an active search for, and thorough analysis of, options is high.

The developing countries can, therefore, take the initiative in gathering, analysing and disseminating information about industrial ventures in which they are interested. The establishment of investment centres, the use of investment missions, trade fairs, and various other familiar procedures are open to countries trying to expand the range of choice as fully as possible. The involvement of governments in multilateral conventions and in organizations which influence attitudes towards, and procedures followed in, the provision of foreign resources in industrialization, likewise play a role. Developing countries as a group can and should use their collective bargaining power to ensure that such multilateral arrangements reflect their interests to the greatest extent possible.

With regard to industrial restructuring among developing countries themselves, the evidence currently available does seem to suggest that there may be substantial opportunities for joint ventures and similar arrangements in certain fields of basic industrial goods and capital goods, as well as in several branches of non-brand-name consumer goods. Finance for such investments could come, in part, through loans from developing country financial institutions associated with the capital surplus petroleum exporting countries or in part through loans from international financial syndicates. Through either of these routes there may be opportunities for triangular redeployment schemes. It does seem that, given a certain similarity of problems and of industrialization experience among developing countries, there should be scope for industrial co-operation proceeds within the developing world, so that it will be easier for developing countries to improve their restructuring arrangements with industrialized countries.

C. STRUCTURAL CHANGES IN DEVELOPED COUNTRIES

1. Introduction

In this chapter some of the main features of structural changes in industry in individual developed countries and connected pertinent aspects are presented. The bases of this presentation are on the one hand, the country studies that the Secretariat has carried out in co-operation with national research institutes and, on the other hand, various other studies available at the time of writing. At this date (December 1979) the Secretariat carried out studies in the following countries: Australia, Austria, Belgium, the Federal Republic of Germany, France, Hungary, Sweden and Switzerland. These individual studies have been or are being issued in separate reports (see list in Annex 1). At present, studies are being carried out through the Secretariat on structural changes in the United Kingdom and the United States of America. These studies will shortly be published. The additional available research results that were used for this report refer to Canada, France, Italy, Japan, the Netherlands, the United Kingdom and the United States of America (see Annex 2).

The aim of the studies initiated by UNIDO was firstly, to identify the major trends and determinants of industrial restructuring of these countries as revealed by the changing production composition by branch. Secondly, the studies were to analyze the identified trends in terms of their significance for the changing division of labour betwean the developed and the developing countries. Thirdly, it was attempted to assess the validity and significance of identified determinants of past structural changes for future developments in the manufacturing industry.

In summarizing the findings for general presentation, the Secretariat endeavoured to provide a brief profile of the individual countries' restructuring process and to derive certain conclusions and findings for the countries as a whole. [1] It is essential to note that in the presentation of past and future structural changes the aggregation of industry branches is so high that it necessarily covers up a number of structural changes inside the branches. Especially in heterogeneous branches a closer investigation would identify large differences in growth between the sub-branches and/or the technologies applied in various industries.

The chapter first describes the main features of the restructuring process in the economies, and in particular in the manufacturing sector. Subsequently future trends are outlined. A brief review is then made of developments in industrial employment in the developed market economies, since in the debates considerable attention is given to this aspect of the adjustment process. Finally some of the major policies which affect structural changes in the countries in question are briefly described.

1/ Unless reference is made to other sources, the country data were taken from the studies mentioned on the previous page.

2. Main Features of the Restructuring Process

2.1 Developed market economy countries

The main features of structural change in the developed market economy countries might be summarized in the following points. First, in the 1960's and 1970's the service sector has gained in total value added relative both to manufacturing and agriculture; while manufacturing was increasing its share in the 1960's, during the 1970's it lost ground relative to services. Second, economic growth has slowed down considerably during the 1970's and that increase has brought to the surface certain structural problems which were more easily manageable in the earlier period of high growth. Third, the share of the total labour force employed in manufacturing has tended to decline. That decline has been most pronounced, relatively speaking, in the United Kingdom and the Netherlands, the former being also the country where the proportion of the labour force employed in manufacturing remains relatively high. Fourth, rising productivity has been by far the greatest cause of structural changes within manufacturing. The increase of productivity has in its turn been the outcome of substantial technological changes in the production process itself and in fields of industrial activity not directly related to production.

Besides the technologically-induced rise of productivity, there are several other factors which condition the structural changes. The appearance of new products and of induced changes in income distribution have helped to generate major shifts in the composition of demand both for consumer and capital goods. Moreover, demand shifts have also taken place in the level and pattern of international demand thereby encouraging alterations in the product mix of domestic output and in the structure of foreign trade. Relocation of parts of industrial production to other countries has contributed to internal structural change in the developed market economy countries. Greater competition and specialization among these countries, affecting their market shares at home and abroad, has stimulated this relocation process.

Whereas so far the international division of labour was characterized by trade between primary commodity producing countries on the one hand and final industrial goods producing countries on the other, international trade is now changing its structure with manufactured products from developing countries increasingly entering international markets. Moreover, the dividing of production processes into sub-processes and the possibilities of shifting these to other locations has led to a considerable increase in intra-industry trade - also between developed and developing countries.

Thus, in addition to international trade in commodities based on comparative advantages in factor-composition, there is now a trend in sharing of production by companies of different countries based on the countries' comparative advantages in producing inputs for the final products.

The level and changes of developed countries' exchange rates have in some countries also affected the restructuring process. With the shift away from fixed rates during the 1970's, the competitive edge held earlier by countries with strong currencies tended to diminish. During recent years all developed market economy countries were in addition affected by increasing price levels of raw materials and energy. Calculations of the determinants of labour displacement in developed market economy countries demonstrate that productivity increases and competitive pressures generated by other developed countries have been much more significant causes of structural change than imports from developing countries.

Although it could be argued 1/ that, during the next few decades, the process of economic growth could continue without reaching absolute physical limits (such as chronic shortage of raw materials), available

---

1/ See for instance, OECD, Facing the Future, Paris 1979 evidence suggests that a qualitative change of economic development is necessary. Future development would need to be oriented towards the search for new technologies and greater means of environmental protection. To this end the development of alternative sources of primary energy and raw materials, and the development of new technologies for their utilization can be expected to gain importance. A qualitative growth would also include the development of new concepts and technologies in agriculture and agro-industries to avoid the long-term destruction of arable land and to ensure protection against toxic products.

Substantial changes are expected to be induced by developments in electronics and by the application of biological and biochemical research results. More stringent legislation on environmental protection and devices is likely to encourage growth of new industries producing equipment to protect against pollution. Such legislation could also lead to the total abandonment of some existing products and processes or to their relocation.

Future growth is likely to be associated with a relative increase in the role of the service sector, both for consumers and for industrial services. It is likely that the industrial services will, in the future, be increasingly provided from within the industrial corporations i.e. rather than provided as separate items on the open market.

Differences in population trends between developed and developing countries such as the faster growth rates of population in developing countries, which imply a relatively younger age structure, will affect restructuring of production in the future through their influence on patterns of demand in the two groups of countries.

2.2 Overall trends in centrally planned economies

Structural changes in the economies of the developed centrally planned economy countries are determined mainly by the priority given to the development of the industry sector. It has been emphasized that due to the centrally planned organization of these economies, "the State determines the necessary degree and directions for structural reorganizations and carries these reorganizations out purposefully and systematically in advance, without waiting for disproportions to arise". 1/

On the basis of their development plans these countries establish long-term development objectives and priorities and co-operating programmes among CMEA members. One of the main development objectives is a systematic change from extensive production technologies and industry sectors to more intensive ones. Priority is given therefore to those sectors which make a more efficient use of available resources and those sectors which entail scientific and technological progress.

In satisfying these general objectives, each individual country is integrated due to its specific characteristics and resource endowments into the long-term co-operative programmes. 2/ The centrally planned economy countries thus intend to expand their participation in the international division of labour through co-operation within the group of CMEA countries, through improved industrial co-operation with the developed market economy countries and increased relations with the developing countries, 3/ based on the consideration of the necessity of international specialization and co-operation in

---

1/ cf. The Influence of Structural Changes in the Economy of Socialist and Capitalist Countries on the Development of East-West Trade and Industrial Co-operation, provided at the seminar: The Future of East-West Co-Operation, 1979-1985, March 5-7 1979, Vienna, p. 3

2/ ibid. p. 5.

3/ cf. Schagalov, G.L., The Methodical Problems of Defining the Perspectives of Industrial Development, Considering the Advantages of the International Division of Labour, provided at the ECE Seminar, Warsaw.

industrial production. It is realized that the long-term programmes of industrial development must be adapted adequately to the advantages of the international division of labour.[1]

In a recent study on current and future trends of structural changes in developed centrally planned economy countries and the division of labour between centrally planned economy countries and developing countries,[2] UNIDO examines changes in trade patterns between these two groups of countries. These changes refer to the trade composition of industry sectors and subsectors, and the roles of trade between the different trading partners. As to perspectives of future change in trade between the developed centrally planned economies and developing countries, the findings show that apart from an increase in imports of oil and raw materials, the main lines of the CMEA industrial imports from the developing countries will be represented by processed raw materials, processed tropical food, labour-intensive engineering products and spare parts. These product categories might account for 35-40% of imports by the end of the eighties.[3] On the basis of an evaluation of past industrial co-operation and an identification of expected prospects of future co-operation, it could be suggested that increased attention be given both by the centrally planned economy countries and the developing countries to a growing co-ordination of respective countries' long-term industrial plans and programmes so as to fully utilize opportunities for a dynamic industrial co-operation. To this end a systematic exchange of information would be called for regarding the envisaged industrial development patterns of the countries involved.

---

[1] "Foreign trade must be considered as an alternative to the use of domestic resources of production in case of industrial development decisions on the satisfaction of certain needs of the national economy." (Schagalov, G.L., op. cit. p. 2).

[2] UNIDO, The Industrial Division of Labour between the European Centrally Planned Economies and the Developing Countries, in preparation.

[3] Regarding the foreign trade patterns between developed centrally planned economies and developed market economies, see section 3.2.

3. Main Features of the Restructuring Process in Industry

3.1 Sectoral changes in developed countries

In practically all country studies the same group of industry sectors showed a strong tendency of decline in the last years. These sectors are textiles, clothing, leather and footwear and in some countries iron and steel and shipyards.

An analysis of total demand shows a shift from consumer goods industries to capital goods industries in the developed countries. For instance in the case of the Federal Republic of Germany the share of consumer good industries in total demand fell between 1965 and 1975 from 34% to 31% whereas the share of capital goods industries increased in the same time period from 36% to 38%. This trend can also be confirmed in general by looking at the growth sectors of the EC countries.

The growth sectors in the developed market economies between 1960 and 1973 were mainly chemicals, rubber and plastics, electrical apparatus and motor vehicles. 1/ This is shown in the table 6 on page 103.

In Italy, the Netherlands and Belgium, ores, iron and steel belong to the growth sectors but this is not the case in the Federal Republic of Germany, France and the United Kingdom. In the latter countries instead, precision instruments, data processing and telecommunications are among the growth sectors. Rubber and plastics - a subsector of the chemical industry - was a growth sector in all of the listed countries with the exception of France. With the exception of Belgium, motor vehicles were listed among the growth sectors in these countries. In France and Italy this sector

---

1/ Sectoral Change in the European Economies from 1960 to the Recession, Report of the Group of Experts on Sectoral Analysis, Commission of the European Communities, Brussels, 1978.

Table 6 : Growth sectors of manufacturing industry between 1960 and 1973 in selected developed countries

FEDERAL REPUBLIC OF GERMANY	FRANCE	ITALY	UNITED KINGDOM	NETHERLANDS	BELGIUM
Chemical products	Chemical products	Chemical products	Minerals, building materials	Chemical products	Miscellaneous industry
Precision instruments, data processing	Electrical equipment	Motor vehicles and other means of transport	Chemical products	Rubber, plastics	Equipment products
Electrical equipment	Motor vehicles	Ores, iron and steel	Precision, data-processing	Electrical equipment	Chemical products
Rubber, plastic	Agricultrual and industrial machinery	Miscellaneous manufacturing industry	Electric equipment	Ores, iron and steel	Rubber, plastic
Communications	Communications	Rubber, plastic	Rubber, plastic	Motor vehicles	Ores, iron and steel
Banking, finance and insurance			Communications		
Motor cars and other means of transport			Motor vehicles		

Source: Sectoral change in the European Economies from 1960 to the recession, Report of the Group of experts on sectoral analysis, Commission of the European Communities, Brussels 1978.

experienced growth rates high above the average whereas in the Federal Republic of Germany, the United Kingdom and the Netherlands, this was the lowest growth sector.

The growth sectors are generally characterized by comparative advantages in foreign trade i.e. the sectors' exports shares were higher than their import shares. Capital accumulation in these sectors was also higher than in the rest of the economy. The growth industries showed both a high growth of productivity and a growth in employment whereas in industry as a whole, productivity increased due to output growth and a fall in employment.

In the studies on structural change undertaken by UNIDO, an attempt was made to detect more recent changes and further characteristics of growing industries. It was found that machinery was no longer a major growth sector. Generally, growing industries use much highly qualified labour, whereas declining industries for the most part are characterized by a relatively low level of labour qualification.

Changes in the sector composition of manufacturing industry were accompanied by a changing structure of the labour force. On the one hand there is in general an increasing share of white collar workers (engaged in non-production fields) to the expense of the share of blue collar workers (mainly engaged in production fields), indicating that management, organization and information processing etc. are gaining in importance in industrial activities. On the other hand there is a trend within the group of white collar workers towards a higher degree of qualification.

The past restructuring process in a number of countries can be briefly characterized as follows.

Australia

An overall reduction in employment in Australian industry as a whole could be observed. This is an indicator of the declining importance of manufacturing in the Australian economy since the 1960's, and was principally caused by improved labour productivity. Textiles, clothing and footwear are the main declining branches.

Austria

Austria has until recently held an intermediate position in the international division of labour; this emerged both from analyses of foreign trade and an attempt to identify the determinants of revealed comparative advantages of the Austrian industry branches vis-à-vis the various foreign country groups. This intermediate position has started changing: a tendency to greater similarity with the economically most advanced countries has become apparent.

Canada

In the actual process of adjustment Canadian firms usually face two options; either firms adjust by eliminating inefficiencies in their operations by modernizing or revitalizing their plant and equipment or by re-organizing and moving into more viable lines of production ("adjusting in"); or companies shut down operations because of inability or unwillingness to pursue the restructuring of their existing production facilities ("adjusting out"). Strong adjustment pressure may be found in sectors such as textiles, clothing, footwear, common electrical products and parts of the metal fabricating industries.

Federal Republic of Germany

An analysis of recent changes in the industrial structure with regard to employment showed that in the vast majority of all industries increases in labour productivity and technological changes have taken place. Employment fell in all industries except plastics during the 1970-1976 investigation period.

France

France experienced a continuous high economic growth in the 1950's and 1960's and a continuous low growth with rising unemployment (mainly in the industrial sector) between 1975 and 1979. The survival of non-competitive industries and the pressure of too many low-skilled labour-intensive industries in the high-wage country which France had become, were main causes of the structural problems. The highly qualified labour sectors remained relatively weak.

An overview of adjustment in the 1974-1979 period shows that the growth rate of the steel and foundries, shipbuilding, textile and wearing apparel, shoes and leather industries was more than 2% below the manufacturing sector average. On the other hand, industries like electrical products, electronics, mechanical machinery, aircraft, transportation and rubber have had a growth rate 2% above the average.

Hungary

Hungarian industrialization after World War II was based mainly on the development of heavy industry. From the 1960's, the concentration of production factors in the heavy industry decreased and chemicals were given priority as a sector to be developed; in 1977 the chemical industry reached approximately the same share in industry as in the developed market economies. In the 1950's the light industries and food industry were pushed to the background but have expanded since the beginning of the sixties, the food industry attaining a relatively high share in gross industrial production. The food industry, textile and leather (which include clothing and footwear) now tend to decline although the tendency is not so strong as in the developed market economies.

The research findings indicate that the problems of Hungary's industrial structure are a commodity-structure which is too wide, the production of outdated articles and insufficient co-operation and specialization among firms. Too much raw materials, energy and labour are needed.

Japan

Until the early 1970's the expansion of heavy industry was a dominating factor in industrial growth, although the highest industrial growth rates (in value added) occurred in office, computing and accounting machinery, plastic products and shipbuilding. Low rates were registered in the pulp, paper and paperboard, spinning, clothing, textiles and leather industries.

After 1973 industrial production declined but in early 1978 pre-recession levels were recovered again. From late 1973 until the end of 1977 employment in total manufacturing decreased by nearly 1 million, although the food, leather, secondary textile products and publishing and printing industries showed employment increases. The highest job losses occurred in primary textile products, wooden products, rubber products and metal products.

Switzerland

As in most other developed countries, employment in manufacturing has been decreasing. Employment fell in all branches, except the following which have increased their share in the total industrial labour force: food, beverages, tobacco; subgroups of the paper industry; printing and publishing; rubber, plastics; chemicals; metal goods; machinery.

In both centrally planned and developed market economies the increasing interweaving of the world-wide trade in manufactured products is noticeable in recent years. An analysis of comparative advantages in foreign trade and structural changes in the sectoral composition of individual developed market economies shows that sectors improving their position in the international division of labour explain much of the structural changes in a country's sectoral composition of manufacturing industry. Comparative advantages and their determinants were therefore used in some developed market economies' studies to project the future restructuring process; these projections are summarized in section 4.

3.2 Changes in foreign trade patterns

3.2.1 Main trends

Whereas in the past the international division of labour was characterized mainly by trade between primary commodity producing and capital and consumer goods producing countries, the international division of labour shows an increasing importance of intra-industry trade. This change was made possible by breaking down production processes in a number of sub-processes, and the shifts of such separate sub-processes to different geographical locations according to the requirements of the partial processes and on the basis of the comparative advantages of the various countries in producing inputs, bringing about a change from inter- to intra-industry trade. As a result, the composition of international trade in commodities cannot be explained only on the basis of comparative advantages in factor-composition related to the final products.

This trend in the international division of labour can be seen in the following table 2/ - although the level of aggregation is quite high.

1/ Showing the rough trade flows (according to SITC sections) in absolute values (in millions of US-$) in order to make it possible to identify all relations (vertical and horizontal structure, changes, and balances) in one table.

Table 7 : **FOREIGN TRADE PATTERNS OF THE OECD COUNTRIES AND EUROPEAN OECD COUNTRIES WITH THE CENTRALLY PLANNED ECONOMIES AND DEVELOPING COUNTRIES 1970 and 1977**

OECD COUNTRIES (Classification 1970)

SITC	1970 - IMPORTS OECD	CPE	DEVEL-OPING	REST	WORLD	1977- IMPORTS OECD	CPE	DEVEL-OPING	REST	WORLD	1970 - EXPORTS OECD	CPE	DEVEL-OPING	REST	WORLD	1977 - EXPORTS OECD	CPE	DEVEL-OPING	REST	WORLD
0,1,2,3,4,9	41530	4188	35286	5779	86783	122130	16313	102247	16777	337467	38201	160	7282	3748	49391	125517	6645	27989	7443	167594
(3)			(15069)					(127137)												
5	13426	385	673	228	14712	47831	1695	2173	1228	52927	12616	1034	4602	821	19073	45269	4126	16306	2608	68309
6	36568	1355	5970	1746	45639	99731	4288	15489	3920	123428	36101	2245	9345	1547	49238	96920	9276	33954	3518	143668
7	53521	458	958	68	55005	172911	1944	8240	463	183558	53313	2478	17796	4104	77691	165637	11137	85031	10361	272166
8	15823	410	2484	36	18753	51639	2273	15816	423	70151	15422	401	2857	674	19354	49046	1283	11302	1567	63198
5 - 8	119338	2608	10085	2078	134109	374808	10200	41718	3338	430064	117452	6158	34600	7146	165356	356872	25822	146593	18054	547341
Total Trade	160868	6796	45371	7857	220892	496938	26513	223965	20115	767531	155653	6318	41882	10894	214747	482389	32467	174582	25497	714935

EUROPEAN OECD COUNTRIES

SITC	1970 - IMPORTS OECD	CPE	DEVEL-OPING	REST	WORLD	1977 - IMPORTS OECD	CPE	DEVEL-OPING	REST	WORLD	1970 - EXPORTS OECD	CPE	DEVEL-OPING	REST	WORLD	1977 - EXPORTS OECD	CPE	DEVIL-OPING	REST	WORLD
0,1,2,3,4,9	29428	3460	20962	2946	56796	90689	13131	89781	6033	199634	23317	946	2648	1242	28153	78536	2752	11988	3530	96806
(3)			(9924)					(58584)												
5	10623	337	418	81	11459	37523	1519	1169	357	40568	9422	798	2681	546	13447	36364	3410	9615	1062	50451
6	27261	1054	3641	1343	33299	75873	3375	8015	2071	89334	26896	1706	4569	803	33974	76981	6599	17735	1344	102659
7	34418	417	323	49	35207	112882	1798	2678	164	117522	33218	2154	9201	2227	46800	105377	8931	43553	4325	162186
8	10719	332	878	21	11950	38743	1783	6393	87	47006	11627	324	1561	388	13900	38312	1033	6767	778	46890
5 - 8	83021	2140	5260	1494	91915	265021	8475	18255	2679	294430	81163	4982	18012	3964	108121	257034	19973	77670	7509	362186
Total Trade	112449	5600	26222	4440	148711	355710	21606	108036	8712	494064	104480	5928	20660	5206	136274	335570	22725	89655	11039	458989

K E Y

OECD (1970)	=	OECD Europe and Canada, **United States of America** and Japan.
EUROPEAN OECD	=	Belgium, Luxemburg, Netherlands, Federal Republic of Germany, France, Italy, United Kingdom, Norway, Sweden, Denmark, Finland, Iceland, Austria, Switzerland, Portugal, Ireland, Spain, Greece, Turkey.
CPE	=	Centrally planned economies in Eastern Europe and Asia.
DEVELOPING	=	Developing countries in Europe, America, Asia, Middle East and Oceania.
REST	=	Australia, New Zealand, South Africa and unspecified.

SITC SECTIONS

0	=	Food and live animals
1	=	Beverages and tobacco
2	=	Crude materials, inedible, except fuels
3	=	Mineral fuels, lubricants and related materials
4	=	Animal and vegetable oils and fats
5	=	Chemicals
6	=	Manufactured goods classified chiefly by material
7	=	Machinery and transport equipment
8	=	Miscellaneous manufactured articles
9	=	Commodities and transactions not classified according to kind.

SOURCE: OECD, Trade by Commodities, Analytical Abstracts Series B, 1970, 1977.

The change in the division of labour between the OECD countries and the developing countries is indicated mainly by the increased share of manufactured imports from developing countries in total OECD imports (without SITC Section 3, mineral fuels) from developing countries in recent years. The share was increased from 33% in 1970 to 43% in 1977. The share of manufactured imports from centrally planned economies in total OECD imports from this country group remained stable in this period (39%). Manufactured imports of the OECD countries from developing countries were four times higher in both years than manufactured imports from centrally planned economies. Intra-OECD trade of manufactured products remained stable during this period.

OECD exports to developing countries consist mainly (84% in 1977) of manufactured products, machinery and transport equipment being the most important group (1977: 49%). The same is true of OECD exports to the centrally planned economies: in 1977 80% of exports were manufactures, the bulk of which was capital goods.

The greatest market share increase in the total of OECD countries was achieved by the developing countries: their share in total manufactured imports of the OECD countries rose from 7.5% in 1970 to 9.7% in 1977 while the share of the centrally planned economies increased from 1.9% to 2.4%. In the European OECD countries alone, the shares rose from 5.7% to 6.2% and from 2.3% to 2.9%, respectively. The highest increases in European OECD countries' imports from developing countries were found in machinery, transport equipment and miscellaneous manufactured articles while in imports from centrally planned economies the highest increases were to be found in miscellaneous manufactures and chemicals.

For OECD countries both the developing countries and the centrally planned economies are gaining significant importance as export markets. Though total exports and imports of all OECD countries are nearly balanced in both years of observation, manufactured exports of the OECD countries to the developing countries were 3.5 times higher in 1977 than the corresponding imports (1970: 3.4). This relation is not so high for the centrally planned economies - 1970: 2.4; 1977: 2.5. With regard to developing countries, the relation between exports and imports of manufactured products of the European OECD countries shows a different picture, European OECD countries' manufactured exports to these countries being 4.3 times higher than the corresponding imports in 1977 (1970: 3.4).

The commodity groups which were most important in the expansion of developed countries' manufactured imports from developing countries have been textiles, footwear, leather, clothing and also iron and steel, mechanical goods, electric products, chemicals and partly products of the wood and metal processing industry and instruments. Among these sectors a range of product groups can be observed which have still a small but rapidly expanding share. These product groups are i.e. nails, tubes, wires in the iron industry; cables, pumps, centrifuges, office machines, roller bearings, cooling equipment etc. in the mechanical goods industry; and bulbs, lamps, TV-sets and radios, electric machinery and recording tapes in electric industries. In the chemical industry mainly fertilizers, antibiotics and inorganic acids belong to this group. Miscellaneous industries such as furniture, houseware, cutlery, watches, clocks and cameras are also included. 1/

Although a great number of developing countries are obviously exporting mainly primary commodities, it is apparent that the number of developing countries exporting manufactured products and the range of export products has increased significantly. There is a clear tendency that developing countries diversify their range of competitive manufactured products on the international markets. While these exports are still dominated by textiles and

---

1/ The basis for this paragraph is O. Gulbrandsen's paper, The Evolution of the International Division of Labour, (UNCTAD, October 1978) and is generally confirmed by the results of the studies on structural change initiated by UNIDO, which analyzed changes in foreign trade with a breakdown of industry sectors on the SITC groups level.

electronic products, there is a gradual change over to other items. In these exports the labour intensive goods seem to be supplemented by products with capital intensive technologies.

Intra-industry trade between developed and developing countries is dominated by new rather than mature industries in terms of the product-cycle and consists mainly of intrafirm trade of transnational corporations and of trade stemming from sub-contracting arrangements.

Among the developing countries themselves a tendency towards both increasing intra-industry trade and increasing competition may be noted. A possible reason is that the space for inter-industrial specialization between developed market countries, which have quite a similar factor-endowment, has decreased.

The shifts in price relations of energy and raw materials imports further accentuate international developments, as the developed countries are under pressure to increase their exports to the developing countries to compensate for these imports.

3.2.2 Comparative advantages in foreign trade

The index of revealed comparative advantage [1/] assumes that differences in competitive conditions are revealed by the actual trade flows

---

[1/] This concept was introduced by Balassa in 1965; in principle the following equation was usually applied to calculate an index of comparative advantages:

$$RCA_{it} = \ln (x_{it} / \sum_{i=1}^{n} x_{it}) / (m_{it} / \sum_{i=1}^{n} m_{it})$$

RCA_{it} = Revealed comparative advantage indicator of industrial sector in year t.

x_{it} = Exports of industrial sector i in year t.

m_{it} = Imports of industrial sector i in year t.

n = Number of industrial sectors in a country.

See: Balassa, B., Trade Liberalization and Revealed Comparative Advantage, The Manchester School of Economic and Social Studies, vol. 33 no. 1, 1965.

(export-import relations) of different branches. It also assumes that protectionist measures, transport costs, consumer preferences etc. remain constant. In spite of these limitations this index is one of the best available measures for quantifying the comparative advantages between countries. In the country studies on structural change, the index is therefore used to measure comparative advantage of the countries' industry sectors vis-à-vis different country groups: OECD countries, Southern European countries, centrally planned economies and, mainly, the developing countries. [1]

In the case of Austrian industry, it was found that the basic industries like iron and steel, paper, foundries as well as labour-intensive industries such as leather, clothing and textiles, have high comparative advantages in trade with other OECD countries. It can, however, also be observed that the comparative advantages of these sectors have a slight tendency to decline. The sectors presently having comparative disadvantages are the machinery, chemical and transport industries.

In Austria's trade with developing countries and with centrally planned economy countries in Eastern Europe, one can find a totally different picture. Branches like machinery, chemicals, electrical products and transport equipment show high comparative advantages, while in the clothing and leather industries low and declining values of the revealed comparative advantage indicator are to be found. [2] In textiles Austria still has comparative, though decreasing advantages vis-à-vis this country group while with regard to the developing countries the high comparative advantages in machinery, transport equipment and (mainly) electrical products are declining too.

---

[1] The results of these calculations of the revealed comparative advantage indicators are summarized in tables 8 and 9.

[2] Trade patterns of the Netherlands present a similar picture: the Dutch industry has a great revealed comparative advantage vis-à-vis other developed countries in sectors like dairy products and food stuffs whereas vis-à-vis the developing countries this advantage can be found in metal products and machinery.

These results indicate that Austria is among those developed countries which at present have an "intermediate" position in the international division of labour. The trends show also that on the one hand, Austria is moving towards an increasing assimilation to the more advanced OECD countries, and on the other hand, imports of manufactured products from developing countries are gaining importance.

The pattern of the Federal Republic of Germany contrasts with the Austrian one. It shows great revealed comparative advantages in roughly the same sectors (mainly machinery, transport equipment, chemicals) over both OECD and developing countries; for Austria, revealed comparative advantages in these sectors are only to be found vis-à-vis the developing countries (cf. tables 8 and 9). This indicates the different position of these two countries in the international division of labour.

A comparison of the revealed comparative advantages of the other countries in table 8 shows, in general, that in nearly all developed market countries the machinery, transport equipment and chemical sectors show high revealed comparative advantages versus the developing countries. The iron and steel industry is still among those sectors as well, but with big differences in position among the other sectors with high values (cf. table 8).
In the Federal Republic of Germany, for example, this industry sector ranks very near the line where exports and imports are balanced, whereas in the case of Japan and Belgium iron and steel are among those sectors which have the greatest assets vis-à-vis the developing countries. Special situations due to natural resource endowment exist among others in Australia, which has high comparative advantages vis-à-vis the developing ASEAN countries in sectors like aluminum mineral processing and in Belgium, in the dairy-products sector. Comparative disadvantages vis-à-vis the developing countries (indicated by low values of revealed comparative advantages) are generally emerging in sectors like textiles, clothing, leather and footwear and in sub-sectors of these industries (as can be seen in the case of Belgium, see table 8).

Table 8 : RANKINGS OF INDUSTRY SECTORS IN SELECTED DEVELOPED MARKET ECONOMIES BY REVEALED COMPARATIVE ADVANTAGES IN TRADE WITH DEVELOPING COUNTRIES IN VARIOUS YEARS

high values of revealed comparative advantages

low values of revealed comparative advantages

	AUSTRIA		AUSTRALIA	BELGIUM	FEDERAL REPUBLIC OF GERMANY		ITALY	JAPAN	NETHERLANDS	
	1970	1975	1975/76	1970	1970	1976	1977	1976	1970	1978
1.	machinery	transport equipment	aluminia	dairy products	fertilizers, manufactured	dyeing,tanning	finished structured parts and metal structures	transport equipment	petroleum refin.	petroleum refin.
2.	transport equipment	mineral oil	petroleum refin.	glass	plastic materials	plastic materials	metalworking machinery	iron and steel	transport equipment	metal products machinery
3.	paper products	pottery, non met-min prod.	other mineral processing	paper and cardboard manu.	dyeing,tanning	transport equipment	jewellery etc.	plastic materials	printing and publishing	paper
4.	mineral oil	paper products	chemicals	iron and steel	transport equipment	chemical materials prod.	articles of rubber	paper, paperboard	metal products, machinery	beverages
5.	paper	foundry	food and beverages	plastics	machinery	machinery	printed matters	machinery	electronics	transport equipment
6.	pottery, non met-min prod.	iron and steel	machinery	rubber	chemical materials prod.	essentials, perfumes	domestic electrical equipment	dyeing, tanning	beverages	chemical industry
7.	electrical products	machinery	metallic min. prod.	paper and cardboard	instruments	chemical elements	equipment for electricity distributing	manufacture o metals	paper	printing and publishing
8.	foundry	paper	plastics	chemicals	medical, pharmaceuticals prod.	manufacture of metals	road vehicles (other than motor vehicles)	rubber manufacture	chemical industry	dairy products
9.	metal products	metal products	leather products	pharmaceuticals	manufacture of metals	medical and pharmaceutical prod.	mineral manufacture	sanitation, heating	cement, glass pottery	electronics
10.	iron and steel	electrical products	paper	ceramics	paper, paperboard	explosives, pyrotechnics	household equipment	instruments	dairy products	cement, glass, pottery
11.	glass	glass	paper products	wood manu.	essential oils, perfumes	sanitary, heating	articles of artificial plastics	chemical elements	optical and other manu.	basic metal
12.	textiles	chemicals	printing	fur	electrical machinery	paper, paperboard	aircraft	electrical machinery	basic metal	optical and other manu.
13.	wood	wood		canned fish	iron and steel	iron and steel	food	fertilizers, manu	textiles	leather, shoes
14.	chemicals	textiles		petroleum refineries	sanitary, heating	electrical machinery	ingots etc. of iron and steel	chemical materials and prod.	leather, shoes	foodstuff
15.	clothing	food		clothing	chemical elements	instruments	paper and paperboard	textile yarn	foodstuff	textiles
16.	food	non-ferrous metals		cotton spinning	rubber manufacture	rubber manufacture	cutlery	essential oil, perfume	wood furniture	wood furniture
17.	leather	leather		canned vegetables	explosives, pyrotechnics	fertilizers, manu.	glass	misc. manu.	clothing	clothing
18.	non-ferrous metal products	clothing		leather tanning	mineral raw, crude chemicals	non-metallic min. manu.	telecommunications	leather, leather manufacture		
19.				footwear	non-metallic min. manu.	furniture	musical instruments	explosives, pyrotechnics		
20.				beverages	furniture	miscellaneous manufacture	pottery	non-metallic min. manu.		
21.				meat prepared	misc. manu.	wood and cork	clothing	furniture		
22.				wool combing	textile yarn	textile yarn	toys and sporting goods	medical, pharmaceutical prod.		
23.				quarries	travel goods	non-ferrous metals	fur clothing etc.	non-ferrous metals		
24.				jute spinning	wood and cork	leather, leather products	watches and clocks	travel goods		
25.				non-ferrous metals	leather, leather products	travel goods	silver and platinum	mineral tar, crude chemicals		
26.				sawing of wood	footwear	footwear		footwear		
27.				oils and fats	non-ferrous metals	clothing		clothing		
28.					clothing			wood and cork		

1/ There is no information about those sectors which have low values of the revealed comparative advantage indicator in Australia

Source: UNIDO country studies and the papers regarding Netherlands, Italy and Japan as listed in the annexes.

Table 9 : RANKINGS OF INDUSTRY SECTORS IN SELECTED DEVELOPED MARKET ECONOMIES BY REVEALED COMPARATIVE ADVANTAGES IN TOTAL TRADE, OR IN TRADE WITH OECD COUNTRIES OR ALL DEVELOPED COUNTRIES IN VARIOUS YEARS

high values of revealed comparative advantages

low values of revealed comparative advantages

	AUSTRIA in trade with OECD-countries		FEDERAL REPUBLIC OF GERMANY in trade with OECD-countries		SWEDEN in total foreign trade	SWITZERLAND in total foreign trade		NETHERLANDS in trade with the developed countries	
	1970	1975	1970	1976	1977	1970	1975	1970	1978
1.	wood products	iron and steel	dyeing, tanning	dyeing, tanning	paper and paper products	watches manu.	watches manu.	petroleum refinery	petroleum refinery
2.	pottery, non-met. min. prod.	wood products	explosives, pyrotechnics	machinery	transport equipment	chemicals	chemicals	dairy products	dairy products
3.	paper	pottery, non-met. min. prod.	sanitary, heating	transport equipment	basic metal industries	machinery, transport equipment	machinery, transport equipment	foodstuff	foodstuff
4.	iron and steel	paper	transport equipment	chemicals	wood products	textiles	metal products	beverages	chemical industry
5.	clothing	foundry	machinery	manufacture of metal	machinery and equipment	graph. industries	textiles	printing and publishing	optical and other manufacture
6.	foundry	leather	manufacture of metal	furniture	fabricated metal products	food and beverages	graph. industries	chemical industry	beverages
7.	leather	metal products	fertilizers manu.	explosives pyrotechnic	electrical machinery	metal products	food and beverages	opticals and other manu.	basic metals
8.	metal products	textiles	furniture	electrical machinery	chemical and plastic prod.	clothing, footwear	leather	electronics	printing and publishing
9.	glass	food	chemicals	medical and pharmaceutical prod.	non-metallic mineral products	leather	paper and paper-board	basic metals	electronics
10.	textiles	clothing	medical and pharmaceutical prod.	plastic materials	rubber products	paper and paper products	clothing, footwear	textiles	paper
11.	food	electrical products	instruments	instruments	instruments, appliances	non-metallic min. products	non-metallic min. products	leather, shoes	metal products machinery
12.	electrical products	paper products	miscellaneous manufacture	miscellaneous manufacture	textile, weaving apparel, leather	wood, cork	wood, cord	paper	cement, pottery glass
13.	non-ferrous metal products	glass	electrical machinery	sanitary, heating				clothing	textiles, leather shoes
14.	paper products	machinery	plastic materials	chemical elements				metal products machinery	clothing
15.	machinery	non-ferrous met. products	essential oils and perfume	essential oils				transport equipment	transport equipment
16.	chemicals	chemicals	non-metallic min. manu.	iron and steel				cement, pottery, glass	wood furniture
17.	transport equipment	transport equipment	chemical elements	non-metallic min. manu.				wood furniture	
18.	mineral oil	mineral oil	iron and steel	rubber manu.					
19.			travel goods	textiles, yarn					
20.			rubber manu.	fertilizers manu.					
21.			textile yarn	non-ferrous metals					
22.			wood and cork	leather, leather manufacture					
23.			leather, leather manufacture	wood and cork					
24.			mineral tar, crude chemicals	travel goods					
25.			non-ferrous metals	paper and paper board					
26.			clothing	clothing					
27.			paper, paper board	footwear					
28.			footwear	mineral tar, crude chemicals					
29.									

Source: UNIDO country studies and the papers regarding Netherlands as listed in the annexes.

Developed countries were generally found to have comparative advantages vis-à-vis each other in traditionally dominant sectors, such as wood, paper and paper production in Sweden, the watch industry in Switzerland, and the dairy products, foodstuffs and petroleum refining sectors in the Netherlands. Apart from these, the main branches with high comparative advantages are (with the exception of Austria) chemicals, machinery and transport equipment, which indicates both strong competition and high intra-industry specialization in these sectors among the developed market countries.

Only in the Federal Republic of Germany a number of branches were found to have lost comparative advantages since 1970, imports becoming higher than exports. This was the case in the sectors of medical and pharmaceutical products, precision instruments and optics, plastic materials, miscellaneous manufactures, sanitary and heating (see table 9). But in spite of this total manufactured exports remained 1.5 times as high as total manufactured imports between 1970 and 1976. This surplus was created by only one fourth of the branches, just as in Switzerland: despite the fact that there were only four Swiss sectors in 1975 which had higher exports than imports, these sectors compensated all the deficits of the other sectors. Total Swiss manufactured exports were in 1975 1.14 times higher than manufactured imports.

3.2.3 Determinants of comparative advantages in foreign trade

In the analyses undertaken at the country level, the main determinant of comparative advantages emerging in nearly all cases is high qualification of labour (human capital intensity). In the case of the Federal Republic of Germany, four different trade models showed that the relative abundance of highly skilled managers, research and development personnel and qualified production workers are the most important asset in trade with the developing countries, followed by energy-intensity and economies of scale. Although significant, physical capital intensity and the effective rate of total government assistance fail to account for comparative advantages.

In Austria too, comparative advantages vis-à-vis the developing countries are determined by highly qualified managers and skilled workers. Energy intensity has a negative influence. The intermediate position of Austria was confirmed in calculating the determinants of comparative advantages in foreign trade with OECD countries. Here physical capital intensity turns out to be a factor favourably influencing the comparative advantages of Austrian industry sectors, whereas high qualification of labour (management and workers) shows a negative influence.

The Swedish analysis too shows that the position of Swedish industries is determined by their human capital intensiveness. Swedish industries loose their competitiveness not only in "low labour-intensive" branches but also in physical capital intensive ones.

The calculations for Australia and the Netherlands show results which are slightly different. Australian calculations indicate that the most significant factors positively influencing Australian trade patterns with Asian developing countries are human capital intensity (as in the other developed countries) and also natural resource intensity. In other words, the industries which are most likely to be successful in Asian export markets appear to be those which make intensive use of skilled labour and local natural resources due to the specific Australian endowment with natural resources. 1/ Export performance does not appear to be necessarily linked with the highly capital-intensive industries. Differences in effective rates of protection among industries do not seem to have a significant influence on trade patterns.

Calculations of Dutch comparative advantage determinants originally used a wage cost indicator describing human capital intensity and

---

1/ Australian industry growth prospects are in accordance with this pattern: the aluminium, petrol refining and other mineral processing industries have the best growth prospects. Australia is well equipped with bauxite, iron ore and coal.

included the petroleum refineries, which carry a great weight in total industry. The results show that Dutch industry has considerable comparative advantages in total foreign trade primarily in those industry sectors where the natural resource content of products is high. Human capital intensity turned out to be negatively associated, labour productivity and capital intensity positively associated with export performance. More recent calculations which exclude the petroleum refineries and measure human capital intensity with qualitative secondary and tertiary education indicators confirmed however, that human capital is the most important asset of the Netherlands.

As opposed to labour qualification, physical capital intensity did not emerge as a determinant of comparative advantages in trade with developing countries. This is possibly due to the increased international mobility of capital and/or to effects of various government policies. Industrial production processes which require much unskilled labour were found to be disadvantaged in foreign trade and are under increasing competitive pressure from developing countries. The same holds true in most cases for raw material intensive products.

Finally, calculations based on the product cycle hypothesis showed that the industrialized market economy countries have comparative advantages strongly related to the qualified labour factor in the early innovative and research and development intensive phases of the product cycle, while developing countries are competitive in production processes near the maturity stage of the product cycle, where production has become standardized.

Altogether, apart from policy-induced parameters, the major factors determining the international division of labour were found to be on the one hand, the availability of highly qualified labour and the degree of innovativeness of production and on the other hand, the supply of low-skilled labour and raw materials.

3.3 Redeployment of industries from developed to developing countries as one element of structural change

During the past decade labour market conditions, high labour costs, government regulations, newly levied environmental costs and rising energy and raw-material costs in developed countries have coincided to make a number of developing countries more attractive as locations for certain industrial activities.

In many developing countries companies find an abundant supply of cheap labour, access to raw materials, lower energy and environmental costs and a growing access to modern world-wide transport and communication facilities. Developing countries, especially those which pursue a predominantly export-oriented industrialization strategy, are also encouraging foreign companies to locate production in their territories by offering a number of incentives such as tax holidays, guaranteed profit transfers, maintenance support or complete incentive packages in the form of export processing zones. Obviously there are also other reasons for enterprises located in developed countries to redeploy production facilities to a developing country. Faced with decreasing demand in the domestic market, enterprises in certain subsectors require increased access to markets abroad. In many cases this access is made possible only if the company produces directly in the foreign country, behind the tariff borders.

Industrial surveys carried out by UNIDO in Austria, Belgium, the Federal Republic of Germany, Italy, Sweden and Switzerland show that the priorities of the motives differ according to the types of companies planning redeployment activities. It seems that the main motive for transnational corporations to invest in and to redeploy to developing countries is the optimal utilization of the production factor (cheap and unqualified) labour. For other samples of companies it is mainly market access to the host country and to third countries which has highest priority among the listed motives. Technology sales and access to raw materials were additional major motives.

In the regional distribution of redeployment there is a clear tendency in favour of the semi-industrialised countries. A certain degree of political stability is another essential criterion for the choice of country. The availability of raw materials and financial resources and of a large domestic market are obviously also of great importance.

Companies in the Federal Republic of Germany are mainly attracted to European and in particular Mediterranean countries (40% of the sample) and Latin America (28%) where Brazil alone accounts for more than half of all investment during the time period under review. Companies also consider South East Asia to offer considerable scope (22%); Hong Kong, Malaysia, the Republic of Korea, Singapore and recently Indonesia are preferred there for redeployment. The Middle East and African shares are almost negligible. Latin America and certain parts of Africa are expected to become increasingly important.

The company survey in the Federal Republic of Germany indicated that enterprises in the textile, wearing apparel and leather industries shared the highest propensity to redeploy. Wood and wood products, furniture and fixtures, metal processing, large sectors of mechanical engineering - heavy machinery is an important exception - as well as the radio, television, electrical appliances and houseware industries and various chemicals sub-branches showed a considerable redeployment potential as well; those sectors are in general characterized by a low skill intensity or a high degree of production standardization and seem to have or will be at a disadvantage vis-à-vis the developing countries.

Future prospects of redeployment in the Federal Republic of Germany seem significant. A growing propensity to invest abroad, particularly in the developing countries, is expected in the future. In 1976 redeployment was at least a partial rationale for every second Federal Republic of Germany investment in these countries.

Various sectors of Belgian industry have been quite active in the redeployment process and there seems to be a large potential for further redeployment. Industries with a low capital intensity (those producing and/or processing textiles, paper, leather, wood) are in general looking for cheap labour and raw materials and markets; among industries with a high capital intensity (chemicals, metal-working, food, building materials) new markets (for products or technology) are a main reason for redeployment.

In the case of Switzerland it was found that the very significant revaluation of the Swiss franc changed the competitive position of the Swiss industry. The production of manufactures for which the country has no monopoly and for which price rather than quality is decisive in the market, therefore came under great competitive pressure. This forced Swiss industry to adjust very quickly, either by concentrating on the improvement of productivity and quality of products or by relocating production abroad. Swiss industry's redeployment potential now seems limited, as redeployment has already taken place to a significant extent. In the textile and footwear industries, for example, redeployment started already in the 1960's and seems now to be practically completed. It might be pointed out that the number of persons employed in Swiss-owned enterprises abroad corresponds to about 70% of the total labour force working in industry in Switzerland.

Swiss enterprises in many cases consider the United States to be an alternative to redeployment to developing countries. The United States offer the Swiss industry lower labour costs, high productivity and the largest single market in the world. A similar view is frequently found in Sweden where recent examples show that attractive redeployment possibilities could be found in other developed countries rather than in developing countries. The textile industry for instance redeployed activities to the United Kingdom and Portugal. Both Switzerland and Sweden seem to have developed rather sophisticated fields of production which may in many cases not be relevant for either production or consumption in developing countries.

In nearly all of the studies on redeployment tendencies and opportunities similar obstacles to redeployment to developing countries faced by small and medium-sized companies were found. These obstacles were:

- lack of relevant information
- lack of finance
- lack of skilled workers in the host country
- low productivity of labour in the host country (this often is stated to outweigh lower labour costs)
- socio-political conditions in the host country
- import restrictions of the host country
- supply problems in the host country
- uncertainty regarding trade policies and other measures affecting market access in developed countries.

In order to overcome these obstacles, the studies indicate the increasing need for policies which support redeployment activities in both developed market economies and developing countries. [1]

---

[1] See in this context also the recommendations in Chapter A.

4. Expected Future Developments of Industrial Sectors

An attempt has been made to outline future changes in the international division of labour on the basis of the analyses of past developments in industry, the changing foreign trade patterns and comparative advantages, their determinants and the relocation process of production facilities. The general growth prospects that emerged for the individual sectors in developed countries indicate that developed countries on the whole are likely to concentrate on maintaining and expanding human capital intensive industry sectors. The main emphasis will be on the utilization of highly qualified labour in management functions, and on a sophisticated industrial service sector and the availability of research and development facilities. This implies that the early stages of the product cycle - which require the above mentioned characteristics - are likely to expand in these countries.

This pattern of future structural change is in general confirmed by the various projections of the future growth prospects of the individual manufacturing sectors in a number of developed countries. The approaches used for this purpose were:

(a) Conditioned forecasts:
  - Approaches based on trade theories
  - Approaches based on the principle of labour qualification;

(b) Projection models based on general equilibrium and general trends of the gross domestic product;

(c) A normative approach which uses national socio-economic objectives as major determinants.

Conditioned forecasts require identification of the past and present determinants of structural changes. It is assumed that these determinants basically influence the development of the industrial structure and will not change over the period of projection. On this basis some country studies simply assume that sectors with high revealed comparative advantages are also sectors which have future growth prospects. Other studies attempt to identify the determinants of these comparative advantages and to base conditioned forecasts of future growth prospects on them. Conditioned forecasts may also be based on the principle of labour qualification. This principle is derived from the application of an international sectoral production function, and shows that the macroeconomic marginal productivity of labour has a high value in explaining the industrial restructuring process and competitiveness.

In projection models there are problems connected with the use of extrapolations of exogenous variables, since it is assumed that the development of the basic parameters will follow the lines of extrapolated trends. Drastic changes of these basic parameters would reduce the value of or even invalidate the results of this approach.

The normative approach presupposes a clear definition of natural objectives and preferences and specific government policies and interventions to realize these objectives.

Despite the fact that the individual country projections may differ in methodology and aggregation, some general future sectoral development trends can be outlined now on the basis of the overview given in table 10 on page 133.

The most revealing feature emerging from a sectoral analysis of the projected changes in industry structure is that the industrial structures of the individual countries show a trend to further national specialization indicated by a differentation of certain sectors' growth among the individual countries. The sectors with the best growth prospects are aluminium in Australia, chemicals in Switzerland and Austria, plastics in Belgium and in the Federal Republic of Germany, aircraft in Canada, mechanical engineering in France, telecommunications and vacuum techniques in Hungary, electrical machinery in Japan, petroleum refineries in the Netherlands and paper products in Sweden.

The second main feature of projected growth prospects is that there are sectors which are expected to be important in nearly all countries under research: i.e. mainly the chemical industry and its subsectors (plastics, pharmaceuticals, rubber etc.) and the machinery industry and its subsectors (electrical and precision machinery). This may imply both an increasing competition on domestic and third markets and/or an increasing tendency towards intra-sectoral specialization and intra-industry trade between the developed (market) economies.

Average growth prospects were found in most countries for paper and paper products and wood and furniture. Exceptions are the Netherlands, where both industries are expected to decline, Japan (average growth for paper and pulp only) and Sweden, where both industries rank among the industries with the best growth prospects.

Sectors expected to decline are by and large the same industries which already declined in the past. The weakest branches are in general: textiles, its subsectors and clothing (Japan, Switzerland, Austria, Belgium), leather and footwear industries (e.g. in the Federal Republic of Germany) and in some countries the diverse metal and metal-processing industries (Sweden, Canada).

For some sectors results of growth prospects were obtained which differ clearly from country to country (see table 10). This may be partly due to differences in natural resource endowment (as it is in the cases of Australia, Sweden and the Netherlands). Yet, also in the case of the food industry and its subsectors different results can be found. In some countries (Austria, Canada, Sweden, Switzerland, the Netherlands) these have good growth prospects, whereas in the Federal Republic of Germany, France, Hungary and Japan, the food industry is expected to rank as more or less declining industry. This seems to be caused mainly by differences in levels of aggregation and by differences in the use of highly qualified labour and their valuation for the future prospects of this sector in different countries.

4.1 Projections for developed market economies

In order to highlight certain specific trends in a number of individual countries, a brief review is presented below.

Australia

The evaluation of branches with high values of revealed comparative advantages resulted in a forecast of growth prospects for those branches which produce with a high capital, raw-material and human skill intensity; a high output per worker is also significant. The branches in question are aluminium, petroleum refining and mineral processing. After them rank the more human capital intensive chemicals and engineering sectors. Food and beverages are also seen as sectors which have good future prospects in Australia.

Austria

If the exogenous conditions of the economic system do not change, the principle of labour qualification is expected to determine further development of industrial structure. The best development perspectives are expected for chemicals, food and beverages, machinery and paper sectors, whereas unfavourable changes will tend to prevail in clothing, textiles, iron and steel and in parts of the transport industry. It was found that enterprises would tend to react to competitive pressure not with the redeployment to developing countries of affected product lines, but with adjustments in product mix or through rationalization measures to increase labour productivity.

Belgium

Projections for the year 1985 show that in general it is to be expected that the industries with low, cumulative natural resource requirements and high value added per person (e.g. non-ferrous metals, chemicals, plastics, printing and paper) will constitute growth sectors . Among industries with high cumulative natural resource requirements and low value added per person, only canned fish and canned vegetables show increasing output projections.

The projections for industries with low cumulative natural resource requirements and low value added per person turn out to be more optimistic than those for high/low industries: cement, paper and cardboard, wood and clothing show an increasing employment level, while for tobacco, clay, felt, fur and footwear a decline in employment may be assumed. Except for the tobacco industry, all the latter industries show at the same time a clear decline in output level. Almost all industries with high cumulative natural resource requirements and high value added per person seem likely to perform well in the coming years. Only the coal agglomerates, cokes and oils and fats sectors show a decreasing output level up to 1985, and iron and steel is clearly the main problem sector of Belgian industry. Petroleum refineries, however, show the greatest growth potential under the assumptions used.

Canada

A basic consideration is that one major constraint to the long-term development of an internationally competitive manufacturing sector in Canada is the limited size of its domestic market: Canada and Australia are the only major industrialized countries without free access to a market of 100 million or more consumers. The market does, in many sectors, not permit the realization of maximum economies of scale.

A significant portion of the resource processing industries - wood and paper products, primary metals and non-metallic mineral products - require extensive modernization and rationalization to remain competitive in the anticipated environment of the 1980's. The need for rationalization is also evident in a number of other industries such as furniture and shipbuilding. Good growth prospects exist in the aircraft, non-metallic mineral products and food processing industries.

France

An "optimal" industrial structure was projected to 1990 on the basis of an assumed set of national objectives and of estimated constraints. This structure has the following implications:

- Mechanical engineering, electrical machinery and chemical industries would have to increase their relative shares in industrial production;
- Meats and milk production and other food-processing, textiles and clothing, leather and footwear industries would have to decrease their relative shares;
- The iron and steel, glass, foundry, motor vehicles and transport equipment industries as well as printing and publishing industries may increase or decrease or remain more or less stable.

As far as subsectors are concerned, the following would make a main contribution to the growth of the sector to which they belong:

- Organic chemistry, in the chemical sector (better competitiveness and efficiency);
- Rolling stock in the automotive sector (both competitive and efficient);
- Precision engineering along with industrial plants in engineering;
- The steel-tube sector should, unlike the other iron and steel subdivisions, have a positive growth rate (higher employment and efficiency, poorer competitiveness);
- The strongest subsector of wood and products would be woodmills (better efficiency and competitiveness).

Japan

The most dynamic industries in the future are expected to be the electrical and precision machinery industries; lowest growth rates are assumed in textiles as well as iron and steel. It should be remarked that because of high energy and natural resource inputs, aluminium refining, synthetic fibres, carton and PVC and fertilizer production are likely to decline in the future.

The Netherlands

It is expected that the petroleum refinery, dairy products and chemicals' sectors will - up to 1986 - show a development which is high above the average, whereas textiles, clothing transport equipment, wood and furniture will decline.

Sweden

According to annual growth rate projections (1975-2000) three industrial sectors will grow faster than GNP: forestry, wood, pulp and paper industries; paper product industries; the food-processing industry. The food-processing industry is a typical sheltered industry.

The relatively successful forestry and paper products industries are vertically linked and have some common features: world market demand increases rapidly and the price elasticities in the import and export functions are relatively low. However, their comparative advantages are declining as domestic production costs increase in relation to world market prices. In fact, there is only one sector where that does not hold: the chemical industry. Production in this sector, however, grows relatively slowly, due to the appreciation of the exchange rate in conjunction with relatively high price elasticities in the import and export functions.

The most rapidly declining sectors in the projections are shipyards, metal industries and the textile, clothing and leather industries, due to an unfavourable development of domestic production costs in relation to world market prices. This problem is, of course, amplified by the appreciation of the exchange rate and, in the case of the metal industries, a relatively slow growth of world market trade.

Switzerland

The following classification of Swiss manufacturing branches according to corresponding developments can be made:

- Chemicals, rubber, plastics, machines and equipment: Strong expansionary drive, successful entry into or defense of export markets and absence of threatening cost pressures.
- Metals, printing and publishing, wood, cork, food, beverages, tobacco: Average expansionary drive or high quality production, satisfactory export performance, and a reasonable cost situation.
- Non-metallic mineral products (except petroleum and coal) watches, paper and paper products: Lagging quantitative expansion, penetration of export and/or domestic markets by foreign producers, severe profit squeeze as a result of unfavourable cost developments and/or lack of innovation.
- Textiles and wearing apparel: Especially unfavourable combination of the characteristics enumerated for the third group.

United Kingdom

Manufacturing processes (primarily in engineering) which require relatively high-skilled labour and high quality products are likely to remain competitive. However, skills are very quickly being acquired by the new industrializing countries; the United Kingdom therefore would have to improve skill levels and to ensure that the pattern of available skills keeps pace with the changing needs of technology.

4.2 Expected developments in centrally planned economies

Quite generally, the future development of industry sectors in the centrally planned economies is determined by established national development objectives. Sectoral priorities seem to be given to sectors which apply in general more "intensive" than "extensive" production technologies, which means that technologies utilizing available resources more efficiently and thus leading to the saving of labour, material and capital, are preferred for the future. Moreover, technologies have to enable the attainment of a higher quality of the final products. In order to stimulate scientific and technological progress, explicit priority has been given to the development of the machinery, petrochemicals, precision instruments and computer industries.

Information available on Hungary indicates that on the basis of the past development, growth prospects can be found in the telecommunications and vacuum techniques, chemicals and precision instruments industries. Declining industries are leather, fur, shoes, textiles, clothing, metalware and mining. Average growth is expected for the wood, paper, machinery, equipment and building materials' industries. As the development of intensive production technologies has been given priority, it is intended to improve efficiency in the Hungarian industry sectors. This means inter alia that, rather than to create new production units, the existing ones are to be rationalized to increase the efficiency of investments.

Table 30 : RANKING OF INDUSTRY SECTORS IN A NUMBER OF DEVELOPED COUNTRIES ACCORDING TO GROWTH PROJECTIONS 1/

	AUSTRALIA	AUSTRIA	BELGIUM	CANADA	FEDERAL REPUBLIC OF GERMANY	FRANCE	HUNGARY	JAPAN	NETHERLANDS	SWEDEN	SWITZERLAND
1.	aluminium	chemicals	plastics	aircraft and parts	plastic products	mechanical engineering	telecomm. vacuum technology	electrical machinery	petroleum refinery	paper products	chemicals
2.	petroleum refinery	food, beverages	petroleum refinery	non-metallic mineral products	chemicals	electrical machinery	chemicals	precision machinery	diary products	printing, misc.	food, beverages
3.	other mineral products	machinery	soap and perfumes	food processing	electrical machinery	non-ferrous metals	instruments	general machinery	chemicals	food, beverages	printing, publishing
4.	chemicals	wood products	other beverages	transportation equipment	machinery, except electrical	chemicals	electrical engineering	metal products	food stuff	forestry, wood, pulp, paper	metals
5.	food, beverages	paper, paper products	pharmaceutical	motor vehicles and parts	rubber products	parachemicals	transport vehicles	chemicals	optical industry other manufacture	non-metallic mineral industry	machinery equipment
6.	engineering	electrical machinery	quarrying	industrial chemicals	transport	household equipment	electric energy	refactory	beverages	chemicals	paper, paper goods
7.	plastics, certain leather products	metallic products	glass	primary metal	petroleum refinery petroleum products	aircraft	wood working	paper, pulp	basic metals	electro-technical industry	wood, cork
8.	paper, paper products	pottery, glass	wood manufactures	processing	wood, furniture	wood, furniture	paper	transport equipment	pottery, cement, glass	transport equipment	leather, rubber, plastics
9.	other specialized printing	clothing	printing and book binding	electrical products	other non-metallic mineral products	pulp, paper, paperboard	typographic	petroleum coal products	electronics	machinery, instruments	watches, jewellery
10	leisure oriented printing	transport	wadding	other chemicals	scientific measur. controlling equipment	rubber, plastics	machinery equipment	food	printing publishing	textile, clothing, leather	non-metallic mineral products
11		iron and steel	paper and card-board	metal products	paper, paper products	iron and steel	building materials	non-ferrous metals	leather, shoes	fabricated metal products	textiles
12.		textiles	vegetable canning		printing	glass	food	iron and steel	machinery, metal products	mining and quarrying	wearing apparel
13.			cement agglomerates		glass, glass products	foundry	metallurgy	textiles	paper	metals	
14.			clothing and confection		iron and steel	transport equipment motor vehicles	leather, fur, shoes		textiles	shipyard	
15.			breweries		textiles	printing publishing	textile		clothing		
16.			weaving		food, beverages tobacco	textile, clothing	clothing		transport equipment		
17.			iron and steel		leather, leather products	leather footwear	metalware		wood, furniture		
18.			sugar		non-ferrous metals	meats, milk products	mining				
19.			non-ferrous metals		fabricated metal products	other food processing					
20.			rubber		wearing apparel						
21.			leather, tanning		musical instr., toys, sporting goods						
22.			chocolate		pottery, china earthenware						
23.			textile wastage		footwear						

Source: UNIDO country studies. See notes on the following page.

Remarks ad table 10

1. Australia - Growth projections without time limits, based on comparative advantages in foreign trade mainly found in products of high capital and natural resource intensive techniques. The industries listed have the most favourable domestic and export growth opportunities.

2. Austria - Projection is a conditioned forecast of the competitive position of industry sectors and is based on the principle of labour qualification, derived from international sectoral production functions.

3. Belgium - Ranking according to expected growth of sector output in Belgium 1974-1985. This ranking is based on a linear projection of GDP growth levels, 1965-1975. The branches following no. 23 are: alcohol, canned fish, chemicals, tobacco, wool washing, oils and fats, footwear, clay, cokes, woodworking, felt, spinning, wool combing, agglomerates of coal.

4. Canada - Ranking of 10 Canadian manufacturing industries by intrasectoral international trade in the year 2000. From: H. Postner, Canada and the Future of the International Economy: A Global Modeling Analysis, a study prepared for the Economic Council of Canada, 1978.

5. Federal Republic of Germany - Ranking according to expected increase of sector shares, 1976-1990. The projection model providing these rankings is based on time series estimates for apparent consumption and exports and imports by industry sectors.

6. France - Ranking according to preferred sector growth, 1974 - 1990, of various alternatives. The ranking selected here was based on the growth objective function.

7. Hungary - Ranking of past rates of structural change between 1970 and 1977.

8. Japan - Ranking according to projected rates of growth (manufacturing output) for 1982 by the Japanese Ministry of International Trade and Industry (MITI), based on GDP projections.

9. Netherlands - Ranking according to the projected comparative advantages of the Dutch industry sectors in foreign trade with the developed countries, 1986.

10. Sweden - Ranking according to projected annual production change rates, 1975-2000, based on a general equilibrium model.

11. Switzerland - Ranking according to employment growth between 1968 and 1977.

Reviewing these results, it needs to be re-emphasized that evidently the industry sectors of which growth prospects have been treated above represent averages. Individual subsectors or companies may deviate very significantly from these averages and may therefore show growth prospects different from the industry sector to which statistically they belong.

Some of the country studies also identify characteristics of competitive industrial technologies represented by the "average aggregates" of industry sectors. A transfer of these macroeconomic results to a microeconomic level seems necessary for future evaluation of redeployment opportunities for individual production processes [1]: it is, after all, not a complete sector which will be redeployed from a developed to a developing country, but a single production process or a part of it. Such a transition from macro- to microeconomic approaches would provide basic information for the decision whether to redeploy or not.

---

[1] A possible method for this transfer from macroeconomics to microeconomics is shown in Future Structural Changes in the Industry of Austria, UNIDO paper on Structural Changes No. 11 (in preparation).

5. Employment in the Developed Market Economies

5.1 General observations

A main issue in the debate on the industrial restructuring process in the developed market economies is the problem of maintaining full employment. This issue seems indeed to constitute a major political obstacle to the pursuance of an international restructuring process. A brief review of this issue may there be warranted.

In recent years, the developed market economy countries have typically experienced much higher rates of unemployment than in the earlier post-war years. For example, while the OECD countries experienced rates of unemployment between 0.5 and 2.9 per cent approximately for cyclical peaks during 1960-1965, the corresponding rates for 1971-1976 are in the range of 1.0 to 5.6 per cent. It is estimated that the OECD countries will have to achieve rates of growth of GDP/GNP of around 2.3 to 3.3 per cent for countries of low productivity growth (e.g. the United States of America, the United Kingdom) to 4.5 to 5.6 per cent for countries of high productivity growth (e.g. Federal Republic of Germany, France, Japan) merely to absorb the increase in their labour force during the early 1980's. Any structural backlog in unemployment will, of course, require additional efforts.

The slowdown in the rate of growth of output in these countries does not offer a good explanation: the data even suggest that the relationship between output and employment growth itself has changed against the latter. This is partly accounted for by the increase in the productivity of labour. However, the high level of unemployment in recent years is also due to what is called "structural" factors, which contain elements of frictional, technological and voluntary unemployment.[1] As far as technological unemployment is concerned, the problem could be aggravated through major innovations with substantial labour- or skill-displacing effects in the short/medium run.

---

[1] A particular observed level of unemployment in an economy can be broken down into four categories: (a) Frictional - due to certain institutional and other characteristics of the labour market; (b) Technological - due to changes in technology: (c) Keynesian or involuntary - due to lack of effective demand; and (d) Voluntary - due to people potentially in the labour-force not offering their services for hire.

One of the most significant negative employment effects of recent technological innovations, for example, has been in those industries manufacturing products in which microelectronic elements have replaced electro-mechanical elements; even employment growth in the tertiary sector may to a large extent be negatively affected by this innovation. [1]

It is expected that employment losses will mainly be borne by the industrial sector - the services sector will more and more dominate employment. Within industry, job opportunities for semi- and low-skilled workers are strongly declining: there has on the other hand been an increase in the demand for highly qualified personnel.

On the demand side, changes in the age structure of populations due to changes in fertility rates in the developed countries will have no consequences on the labour market in the next decade. For that time, existing employment problems in developed countries are expected to be aggravated by a large number of young people entering the labour force and by the increasing participation of women.

From the developments described here, one might conclude that developed market economies could be faced increasingly with the situation where a small proportion of the labour force would be employed at high levels of productivity and its associated high real wages, while an increasingly large proportion would be faced with serious unemployment of long duration, if existing institutional arrangements continue in the labour market. The implications for the distribution of incomes of such a narrowly-based employment structure are as serious as they are obvious. In the absence of other factors, the outcome will depend on the increasing ability and willingness of the State to finance an increasing volume of transfer payments, which may be problematic given the general economic situation and may have unacceptable social consequences. It would therefore seem imperative that the jobs are shared between the workforce. To this end specific policy measures are called for. [1]

---

[1] See: The Impact of Microelectronics on Employment in Western Europe in the 1980's, European Trade Union Institute, Brussels, 1979. This study also generally confirms the employment picture sketched here.

5.2 Increased foreign trade and other factors influencing employment [2]

During recent years, the considerable increase of the market shares of developing countries in developed countries, as shown in section 3.2, has induced a number of developed countries to maintain their trade barriers, or even increasing them for several product groups (e.g. steel, textiles and clothing). However, analyses of these countries' restructuring process clearly point to the need for establishing integrated strategies and policies of trade liberalization, industrial adjustment and redeployment as means for enabling a gradual restructuring of industry.

A general review of the role of developing countries' exports shows that in the past the total impact of imports of manufactures from developing countries on employment in manufacturing industry in developed market economies was almost negligible and that this impact is still quite limited. Even if industries were and are strongly affected by imports from developing countries, these are responsible only for a fraction of job losses. Other factors like increasing productivity of labour (already mentioned as a major factor in section 2.1) or competition of other developed countries are found to be far more important for observed job losses during recent years. This has been shown in a range of specific studies; some concrete data are presented below.

---

[1] cf. Chapter A. Present government policies are described in the next section of this chapter.

[2] Using additional empirical evidence from recent research work, UNIDO has prepared a comprehensive study dealing with this question: The Impact of Trade with Developing Countries on Employment in Developed Countries, Empirical Evidence from Recent Research, UNIDO Working Paper on Structural Changes No. 3, UNIDO/ICIS. 85.

A recent analysis [1] of nearly 70 studies concerning promotion of imports of developing countries shows that in general industries which are affected by increasing imports from developing countries are mainly clothing, textiles, leather products and footwear [2] as well as parts of mechanical and electrical engineering. Benefits from increased exports to the developing countries can be found in the capital good industries of the developed countries. Problems arise because labour displacement effects due to increased imports and job creation effects due to increased exports do not occur in the same industries, regions and labour qualification groups. The displacement effects are highly concentrated in a few industries and mainly small and medium-sized enterprises. In these cases displacements due to future imports from developing countries might even surpass those due to productivity increases. Moreover, "structurally weak" regions and disadvantaged groups of employees such as female, low skilled and old workers, are affected, whereas the job creation effects of increased exports are more widely spread over the economy, mainly in sectors and regions tending to require an above average input of skilled labour.

---

[1] Mayrzedt, H., A. Betschart, H. Möhr, H. Oberhänsli, Förderung von Importen aus Entwicklungsländern in die Schweiz, Schweizerisches Institut für Aussenwirtschafts-, Struktur- und Marktforschung an der Hochschule St. Gallen, St. Gallen 1979.

[2] For the leather and footwear industry, an ILO study (The Employment Implications of Technological Choice and of Changes in International Trade in the Leather and Footwear Industry, Second Tripartite Technical Meeting for the Leather and Footwear Industry, ILO; Geneva 1979) estimates that the total employment fall in high-wage developed countries can be up to two-thirds of the labour force (i.e. 400,000 jobs) by the year 2000.

A study on the United States [1] shows that there was no sector except leather products in which the changing import share was anywhere nearly as significant a factor as was labour productivity and demand growth in affecting employment.

In the Federal Republic of Germany, increases in labour productivity were found to be by far the most important source of labour displacement. Foreign trade had a positive influence on employment during the 1970-1976 period in which overall employment in manufacturing heavily increased. Except for the mineral oil industry, all branches have experienced positive employment effects from real export increases, and in the majority of the cases, these positive effects outweighted by far the negative employment effects due to increasing total imports. Increases in domestic demand have in many cases been an even more important source of additional employment.

In the UNIDO report on the Federal Republic of Germany, the employment effects of foreign trade are disaggregated according to major trading regions of the Federal Republic of Germany. As is shown, both positive and negative employment effects of foreign trade are mainly attributable to trade with developed countries. For all regions, positive employment effects generally outweigh negative employment effects for most branches.

It should in this connexion be noted that the industrialized market economies gained 900,000 jobs net on average in each of the years 1973-1977, created by trade with the newly industrializing countries. [2] It can also be pointed out that according to ILO estimates [3] in certain circumstances, for every worker who is displaced in developed countries by increased imports of developing countries, some 20 workers would find employment in the developing countries.

---

[1] Krueger, A.O. The Impact of Foreign Trade on Employment in United States Industry, in J. Blair and B. Hindley, ed., Current Issues in Commercial Policy and Diplomacy, London, 1978.

[2] OECD, The Impact of the Newly Industrializing Countries, Paris 1979.

[3] H.F. Lydall, Trade and Employment. A Study of the Effects of Trade Expansion on Employment in Developing and Developed Countries, International Labour Office, Geneva 1975.

In summary it can be said that even assuming high import increases from developing countries and an increase in the resulting displacement effect, this effect will remain small compared with total manufacturing employment job losses due to rising productivity, trade with other than developing countries and effects arising from shifting demand. Losses are offset to a substantial degree by jobs created due to additional exports to developing countries. It should also be taken into account that increased exports by the developing countries contribute to an even larger rise in their demand for other manufactures, in particular products requiring highly skilled labour (e.g. capital goods, machinery) from developed countries. Barriers against trade with developing countries could therefore be seen as ineffective, tending to conserve existing structures and to impede upon rather than foster potential improvement of competitiveness and export growth.

6. Policies Affecting Structural Changes

Since the early 1970's the sequence of events described above has induced an increased need for adjustment in the developed countries. However, there are indications that instead a resistance to adjustment emerged in most developed market economy countries. Slow overall growth and low profitability of individual firms lead to a growing reluctance to accept the risks of new investments and adjustments. Short-run economic and social costs form obstacles to adjustment, and a tendency to avoid adjustment and to induce governments to halt liberalization of trade can be observed in business, trade unions and other groups of the societies. Increasing government intervention focussed on such objectives as safeguarding jobs, environment protection and supporting disadvantaged regions, economic sectors and groups of the population. New trade, employment, sectoral and regional policy instruments mainly seem to aim at the maintenance of employment in existing occupations.

In the following brief review some of the major types and features of relevant policy measures used in the various countries are singled out with a view to illustrating their variety and general direction.

Employment policies

General employment policy measures were introduced in a number of countries and seem to have led to sizeable labour hoarding. Austrian policy, in the main, focussed on improved unemployment benefits. In France employment policies are reported to have increased the financial burden of enterprises, because they have partly to finance the unemployment benefits. In the Federal Republic of Germany policies include the promotion of labour force mobility and the granting of short-time working benefits for up to 24 months. Short-time working or temporary lay-off benefits were also introduced in Italy. In the Netherlands global measures were introduced to stimulate investment and to reduce operating costs of enterprises by covering a part of social security contributions of employees. A reduction of social security contributions by employees was also initiated in Italy.

Selective intervention is directly possible in the nationalized sectors. In those countries which have a sizeable nationalized industry sector the emphasis shifted towards employment maintenance and seems to have led to labour hoarding.

The Dutch employment policy makes extensive use of subsidies to prevent unemployment and to compensate wages for low paid jobs for unemployed workers. Similar to Sweden, 70% of wage costs are paid to companies employing surplus labour. During the recession, Norway established liquidity loans and interest subsidies for short-term difficulties in enterprises which are caused by employment maintenance.

A number of countries provide subsidies for job creation for young people (France, Italy and the United Kingdom). In the Netherlands and Sweden these programmes cover not only young but also elderly people. In Sweden an extensive labour market programme is subsidized; it is partly regional and promotes the employment of handicapped people and of women in traditionally "male" occupations. As in a number of other countries, Sweden also places significant emphasis on labour retraining schemes.

Since 1975, Japanese governmental employment adjustment grants support to predominantly large firms with life-time employment commitments. The United Kingdom introduced a temporary employment subsidy in 1975. Firms received up to 6-month wages contributions for each prospective redundant worker kept in employment. This subsidy is selective insofar as mostly labour-intensive industries like textiles, clothing and footwear are entitled to receive it. Some regions were financially supported in the realization of labour-intensive community projects. Norway established a similar instrument, paying wage subsidies to labour-intensive industries affected by cost increases (from 1977 only to textiles, clothing, glass and ceramics).

Investment policies

In most countries selective investment policies are generally carried out through investment funds, special financing institutions, and state holding companies for the nationalized sectors, by providing credit and interest subsidies for special investment, and by credit rationing.

Japan is a good example for the use of comprehensive non-selective investment policies. These policies include low levels of corporate taxation, public land reclamation for industrial use, specific subsidies for water and electricity used for industrial purposes and a general low-interest-rate policy.

In contrast, the Austrian tax system is characterized by high tax rates on enterprise profits. This system is supplemented by an intensive promotion of investments in capital goods. This global policy led on the one hand to very high capital investment proportions and on the other hand to a neglect of non-material investments e.g. the improvement of labour force qualification. This situation may create special adjustment problems in the future.

In the area of selective investment policy, the nationalized sectors are playing an important role in Austria and Italy. In Austria nationalized companies are mainly found in iron and steel, chemicals, metals, electrical and mechanical engineering, and account for nearly a quarter of industrial output. Also the large public expenditure programmes are important. These affect a large part of goods supplied by domestic industry with due regard for regional and sectoral considerations. But various reasons, mainly a growing public sector deficit and a fast deterioration of the balance of payments led to a change in policies towards selectively supporting investments in export-oriented industries and in those competing with exports.

In France a large variety of policy instruments have been used since the 1960's to develop high technology industries. Also industrial concentration and development of depressed regions have been encouraged.

Even prior to the recession, selective measures supported the shipbuilding, iron and steel industries and other specific sectors. Main emphasis was placed on the speeding up of concentration and development in the data processing and nuclear industry.

Similarly, since the 1960's in the Federal Republic of Germany one can notice increasing promotion of research and development and government-supported rationalization of the high-technology sectors in general. The data processing industry and the shipbuilding industry were subsidized too. Main instruments of regional policy in the Federal Republic of Germany are grants to capital investment, freight subsidies and special depreciation allowances.

In Italy the development of the southern regions was a major aim of the policies directing the Italian nationalized industries and state-controlled bodies. In 1975 a reflationary programme was established which included financial aid to the machine tool and ship-building industries.

In Japan credit-rationing had the effect of allocating credits to the strongest sectors and firms within a sector. Curbs on investment and scrapping of unprofitable equipment tended to concentrate resources in the most dynamic sectors. Like other industrialized countries, Japan subsidized the aircraft and data processing industries to develop technology, in response to the effects of trade liberalization. Traditional Japanese industry sectors like iron and steel, aluminium refining and shipbuilding received special credits under a special law which aims at restructuring. These credits are paid for reduction of total capacity and scrapping of least efficient units. Limits on new investments in these sectors are also regulated by this law.

In the Netherlands too, a programme was established for restructuring the shipbuilding industry between 1976 and 1980, with the aim of reducing capacity by 30% by 1978. The Investment Account replaces existing selective subsidies, capital transfers and loans to enterprises. This measure combines a general stimulus to investment with selective elements which serve employment, regional policy, energy-saving and pollution control. In general this instrument gives tax-credit up to 30% of the costs of special investments. Two state-owned companies were founded in 1975 and 1976 to support the industrial development of the Northern and Southern provinces. A special programme to promote redeployment was initiated in 1975 to support enterprises to phase out certain activities in favour of developing country producers. Disbursements under this scheme have however so far been small.

In Norway shipbuilding received considerable state aid during the recession. Loans for restructuring or improving efficiency in the clothing and textile industry are provided by a special programe. Investment supports were carried out to achieve a greater competitiveness of these sectors in the longer term.

In Sweden a special company was established in 1969 to acquire or start industries in depressed regions. Although the nationalized sector has traditionally been small in Sweden, 30 companies were reorganized in 1970 in a single state holding. In 1975 the nationalized sector was supported by an investment programme. As in other countries, the steel industry and shipyards profited by considerable intervention, particularly through special loans. To compensate for losses in competitiveness, sectoral subsidies spread from 1976 on to branches like textiles, pulp and paper. In 1977 measures were envisaged to close older plants and to increase co-operation among different firms.

Also the United Kingdom used nationalization as a means for sectoral intervention. Shipbuilding was assisted and then nationalized in 1977. In a similar way the aircraft industry and a number of big plants of the motor-vehicle industry were nationalized. The British Steel Corporation benefited from a capital expenditure programme initiated in 1972, but in 1978 the investment plans were curtailed and some older plants may have to be closed. In 1975-1976 selective assistance to other industry sectors increased sharply. The following sectors benefited from this assistance: foundries, machine-tools, Wool, paper and paper board, textiles, printing, machinery and electronic components.

Measures to support the establishment of small and medium-size enterprises and aid to undertake high risk development projects are to be found mainly in France, Italy, Japan and Sweden.

Trade policies

A brief review of trade policies in developed market economies shows that tariff protection continues to be a general, though decreasing, prop to industrial policies. Selective non-tariff barriers continue to play an important role, with a bias towards slowing down structural change. Countries like Australia and France shifted their priorities in the early seventies to export industries by special guarantees and export credits. Also low-interest credits for enlarging investments in export-oriented enterprises and special assistance to research and development activities were established. Apart from monetary and fiscal measures improving corporate liquidity, the Japanese government took specific action to aid the country's export sectors. In the United Kingdom formal or informal restrictions on some import commodity groups (e.g. textiles, footwear, certain steel products, ball bearings and cars) have been used to ease adjustment in these sectors.

In some countries sales to the developing countries are subsidized and special credits to developing countries are provided for the same purpose; however, as pointed out before, imports of manufactured products from developing countries have mainly increased through rising competitivity. The increasing protectionism in EEC foreign trade policy (in which non-tariff barriers play the main role) has probably significantly reduced imports from developing countries. Stagnation and decreases of certain imports from developing countries (among others: textiles, clothing, iron and steel) can now, for example be observed in the Federal Republic of Germany.

The evidence just outlined suggests that the following generalizations may be warranted. Firstly, governments in the developed market economy countries indeed both possess and utilize the means to influence, directly and indirectly, the pace and direction of the restructuring process in industry. Secondly, it seems that a large number of the instruments described tend primarily to conserve existing industrial structures and aggravate rather than ease structural adjustment pressures and foster restructuring. Thirdly, by applying these measures the allocation of resources such as qualified labour and management as well as capital may be further distorted and directed to declining and less competitive industries rather than to new lines of production and technologies which are internationally competitive. The potential for further development may thus be reduced accordingly. Fourthly, policies affecting the co-operation and trade with developing countries seem to lack consistency: sales of capital goods are supported but resulting manufactured exports from developing countries are restricted.

ANNEX 1

LIST OF UNIDO PAPERS ON STRUCTURAL CHANGES

No. 1 List of Papers Relating to Structural Changes in Developed Countries, Issue No. 1 (updated)

No. 2 Industrial Redeployment in Sweden: Prospects and Obstacles (UNIDO/ICIS. 54)

No. 3 The Impact of Trade with Developing Countries on Employment in Developed Countries - Empirical Evidence from Recent Research (UNIDO/ICIS. 85)

No. 4 List of Papers Relating to Structural Changes in Developed Countries, Issue No. 2 (updated)

No. 5 Industrial Redeployment Tendencies and Opportunities in the Federal Republic of Germany (UNIDO/ICIS. 90)

No. 6 Future Structural Changes in the Industry of the Federal Republic of Germany (UNIDO/ICIS. 103)

No. 7 Industrial Redeployment Tendencies and Opportunities in Switzerland (UNIDO/ICIS. 115)

No. 8 Future Structural Changes in the Industry of Switzerland (UNIDO/ICIS. 116)

No. 9 Industrial Redeployment Tendencies and Opportunities in Belgium (UNIDO/ICIS. 131)

No. 10 Future Structural Changes in the Industry of Belgium (UNIDO/ICIS. 132)

List of Papers Relating to Structural Changes in Developed Countries, Issue No. 3 (UNIDO/ICIS. 127)

IN PREPARATION

No. 11 Future Structural Changes in the Industry of Austria (Part I and II)

No. 12 Future Structural Changes in the Industry of Hungary

No. 13 Future Structural Changes in the Industry of Australia

No. 14 Future Structural Changes in the Industry of Sweden

No. 15 Future Structural Changes in the Industry of France

No. 16 Industrial Redeployment from Developed to Developing Countries - A Case Study on the Experiences of the Republic of Korea

No. 17 Industrial Redeployment from Developed to Developing Countries - A Case Study on the Experiences of Tunisia in International Sub-contracting

- Export Processing Zones
- Women in the Redeployment of Manufacturing Industry to Developing Countries
- International Redeployment and Interfirm Trade
- Structural Changes in the U.S. Manufacturing Sector 1965 - 1978
- Industrial Redeployment in the Context of Economic Integration Among Developing Countries: the Case of ASEAN
- Study on the Impact of Developing Countries' Imports on the United Kingdom Economy
- Study on the Impact of Developing Countries' Imports on the United Kingdom Economy (Textiles)

ANNEX 2

ADDITIONAL REFERENCES, CHAPTER C

- For a Common Future, a Study of Canada's Relations with the Developing Countries, Economic Council of Canada, 1978
- Forms and Orientations of International Co-operation in Relation to Long-Term Growth Patterns, the Canadian Experience, Canadian Subcommission, Seminar of Senior Economic Advisers, ECE, Warsaw 1977
- Redeployment Opportunities of the Japanese Industry in the Context of ESCAP Regional Industrial Co-operation, UNIDO paper INT/ER/1/2
- The Newly Industrializing Countries and the Adjustment Problem, Report by a Working Group, Government Economic Service Working Paper No. 18, London, 1979
- Towards Concrete Co-operation in Regional Industries, ESCAP
- Une Économie à la Recherche de la Specialisation Optimal; Japon 1960-1980, Groupe d'Etudes Prospectives Internationales, Paris 1976
- Ichimura, S., Japanese Industrial Restructuring Policies, 1975-1978, Symposium on World Development and the Restructuring of Industrial Economies, Bellagio 1979
- Kol, J. and L.B.M. Mennes, Dutch International Trade in Manufactured Products and Effects on Employment 1970 - 1986, Erasmus University, Economic Faculty and Centre for Development Planning, Rotterdam 1979
- Mennes, L.B.M., Adjustments of the Industrial Structure of Developed Economies, in Particular the Netherlands, Erasmus University/ Netherlands Economic Institute, Rotterdam 1978

- Secchi, C., The "New" International Division of Labour Between the EEC and LDC's with Particular Reference to the Case of Italy, Milan, 1979
- Stoffaes, C., Restructuring Economic Activities by Means of the Market - The Test-Case of France, Symposium on World Development and the Restructuring of Industrial Economies, Bellagio 1979